

SCIENCE OF MAN

APRIL 1961

75c

Petroglyphs
The Hula
Cochise Complex
Cataloguing
Easter Island



Editorial



It is a rather basic desire for people to collect things, something which we might categorize as "the magpie effect." Important among the things that people collect are the material culture remains of the long vanished inhabitants of the earth. Since these material culture items fall within the field of interest of the professional archeologist, some of these professionals have rather strong opinions concerning the propriety of such collection. We should like to examine the matter objectively and logically; we do not collect.

The most extreme position of which we have ever heard is that of one professional anthropologist who cautions students not to pick up anything — projectile point, flake, or even chip — as it might be *in situ* and to remove it might be to lose a scientific clue should the site be examined professionally. This is, of course, a ridiculous position. In the first place, should this anthropologist's student leave the object in place, the next, and less brain-washed person who passed, would not. In the second place, no surface object can be said with any assurance to be *in situ*.

Since man began to be aware of his surroundings in any sense other than that which was directly connected with mere livelihood and survival, he has been a collector. In some of the earliest caves inhabited by man, archeologists have found objects which had no utility in the sense of contributing to survival. Odd and pretty bits of stone, bones of long extinct animals, curiously shaped stone concretions, and the like, have all been found in these caves, collected by men who lived thousands of years ago. In Indian graves in the United States there have been found artifacts made by people who lived thousands of years before the person interred in the grave. Because the form of these artifacts was different from that of his own tools the Indian had collected and retained as prized possessions these puzzling and fascinating objects and they were buried with him.

As the Indians of the United States were pushed back into the West or onto reservations, and generations grew up with nothing but romantic or slanderous tales about the Indian in their experience, they grew interested in the artifacts of these Indians, which they found while plowing their fields, wandering along streams, or perhaps strolling in sandy wastelands. Perhaps most of the earliest collectors of "arrowheads" were young boys. However, even the most stolid farmer would not fail to pick up a projectile point or stone axe which he found while plowing. He usually took this find home and put it on the mantelpiece or

shelf. [Arthur George Smith says: "... and put it on a ledge in the barn." Ed.]

Gradually the hunting for Indian relics became a hobby shared by many people. There grew to be clubs of such hobbyists where they could compare their treasures and perhaps trade their unwanted pieces for some they desired more. Then slowly these hobbyists began to want to know more about the people who made these pieces which so interested them. They began to study and to seek advice and information from professional anthropologists. Actually, only a mere half-century ago these professionals were not numerous and the great majority of them specialized in classical or European anthropology. But they did give advice and encouraged the hobbyists to catalog their finds as to place found, conditions under which they were found, and the like.

Within the last twenty years or so, interest in American archeology has burgeoned among the American people, and we use the term "American" in its hemispheric sense. Professionals have come to realize that not only must they educate the amateur and the "arrowhead hunter" in order to prevent vandalism and preserve the cultural heritage, but also that the amateur, if trained, can be a very valuable asset to American archeology.

While our universities are training vastly more archeologists than ever before, the number is still woefully inadequate to keep ahead of destruction of archeological sites by dam building, highway construction, urban expansion, etc. By training the amateur and by keeping in touch with his finds and his collections, the professional can in effect multiply himself many times. Too, many of these amateurs become genuine authorities on the prehistory of their own regions. We could cite dozens of amateurs who know more about their particular regional archeology than any professional. Their collections are competently catalogued and well organized and preserved. They are frequently used by the professionals in preparing scientific papers.

Many professionals are inclined to consider all collectors as vandals, pothunters and nuisances. Unfortunately, the term "collector" is so broad that it does indeed include such menaces to knowledge. Thus many very capable amateurs of archeology are tarred with the brush of opprobrium quite unjustly. Actually, the amateur archeologist is even bitterer about the vandal and pothunter than is the professional, if that be possible. As a consequence, these amateurs often make great efforts to organize local societies for the study of archeology and its methods. Many of these societies render invaluable aid in excavating sites, under the direction of professional archeologists. Often these could not otherwise be excavated and might eventually be lost forever.

Except for a few Brahmanic and fanatical professionals who regard any encroachment on their sacred precincts as insupportable, the problem of the collector resolves itself into a question of semantics. The criticism of collectors is usually directed only at the unscientific and unscrupulous individuals among them. It behooves the collectors to purge their ranks of such individuals as, indeed, they are trying to do at the moment.

As for the professionals, it is not only their duty but it is good sense to encourage the scientific amateur. Not only do such amateurs furnish "slave labor" for the professional, in many instances, but they are a powerful influence in discouraging undesirable practice. Moreover, these collectors, being an influential element in the electorate of a democratic system, can directly affect the livelihood of these professionals. In one instance which we recall, the protests, largely from amateurs and collectors, resulted in the retention of a department of anthropology in an important university after it was decided to abolish it. [It must be remembered, too, that as voters, these amateurs can be a power in changing our antiquity laws, for better or for worse. Ed.]

The "Ivory Tower" is a pre-industrial piece of architecture which is indeed anachronistic in this, the Second Industrial Revolution. This is by no means to say that the cultural values of the past, the heritage of millenia, and maintenance of standards are dead issues. It is academic isolation that is a dead issue. Today and in the days to come, the academician will need to face life as it exists, not entirely as he would like to have it. If this smacks a bit of existentialism and of pragmatism, these are potent factors in the world and will continue to be.

The true collector is, by definition, "one who collects." The archeologist is "one who collects." The point involved is *how* one collects, *why* one collects, and *where* one collects. As in all other aspects of today's world, some agreement between contending forces must be worked out. Unless agreement is achieved, there will be academic war. Though man learns nothing from history, history is very positive on one point: elite civilizations have never successfully withstood barbarian assaults in force.

Carl B. Compton

Director, Instituto Interamericano, and
Member, Editorial Advisory Board,
Science of Man

The comments by Dr. Compton so adequately express the feelings of both the publisher and the editor of *SCIENCE OF MAN* that very little need be added. We wholeheartedly concur in the opinions expressed.

Since the publication of the first issue, a great deal of criticism has been received concerning the Ray Brown article on pages 23-24. When the criticism first

CONTINUED ON PAGE 107

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OFFICIAL MAGAZINE

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SCIENCE OF M A N

A MAGAZINE DEVOTED TO THE STORY OF MAN, HIS WORKS, AND HIS PAST AND TO THE POPULAR PRESENTATION OF THE FASCINATING STORY OF ARCHEOLOGY, ETHNOLOGY AND THE OTHER SCIENCES OF MAN.

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and

Old World Similarities
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Fig. 12. Clan Rocks showings parrots, corn symbols, deer, and birds.



Fig. 13. Centipedes near Lupton, Arizona.



Fig. 14. Dancers and water sign in Cañon del Muerto on a bluff.

Fig. 15. A favorite design for pictographs and for pottery. This one is on a rock face near Lupton, Arizona.

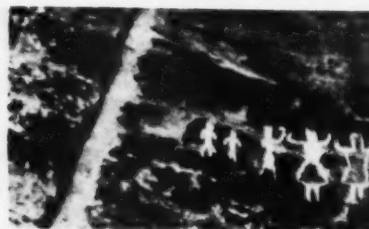
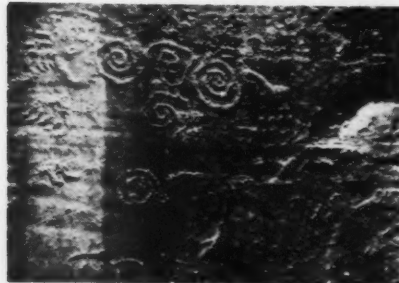


Fig. 18. (Above) A Yeibechai dance.



Fig. 16. "Double bun" coiffure on rock at Tsehanitsosi. A large figure on the extreme left on a lower rock (which did not show up in this photograph) is one of Mrs. Watson's pet two-headed figures. She says it seems to have two upper bodies as well — a possible mutation. Doubly headed figures that appear very similar to this "double bun coiffure" have been found in other parts of the United States.

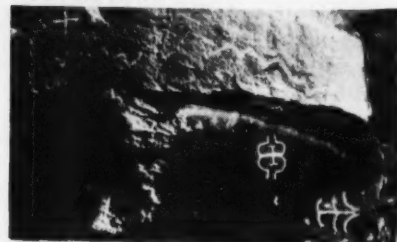


Fig. 17. On the rocks near the Zuñi village of the Great Kivas.

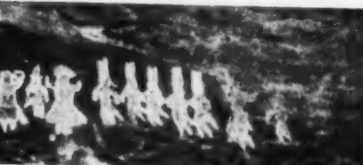


Fig. 19. (Below) Clan Rocks, the Hopi "autograph album."



SELF-ILLUSTRATED ARCHEOLOGY

By Editha L. Watson
New Mexico Archaeological Society

Hunting Petroglyphs Can Be Fun

This is the second of a series of articles by various persons on petroglyphs and pictographs in the United States. As there are many people interested in collecting these early Indian writings for study, one series of figure numbers is used through all the articles for easy reference. Readers are urged to send in their photographs and articles for possible publication in this series. Ed.

ARCHEOLOGISTS say that the print of the human hand not only is the oldest but also the most widely dispersed pictograph in the world. It is found among the earliest cave paintings in Europe, and certainly it is common enough among the most ancient rock pictures of our American southwest.

It's easy to imagine how this began: Young man Pithouse rested his bloody, muddy or painty palm on a rock, discovered and admired the result, and then did a little experimenting. Being, probably, a person with a fairly one-track mind, he concentrated on handprint variations at first: outlines, groups of lines filling in the space, white as well as red paint, and clusters of rows of hands as well as single prints. (Fig. 20.)

No one knows, of course, when a prehistoric youth found out that he could peck a rock surface with a smaller rock and produce pits that could be formed into pictures. But somewhere along the way it must have been discovered that these paintings or peckings on the surface of rocks were long-lasting and could be used as a sign to those who followed, whether days or years afterward. So it happens that, centuries later, we come along to behold and take pleasure in the pictographs and petroglyphs* left all over the United States by the long since

vanished people who once lived here, and who left us their ideas in permanent form even though we rarely can understand them. (The southwest, which limits the present discussion, is only one of the areas where ancient inscriptions are found.)

We can follow the development of meanings as well as artistic ability from the imagined beginning: the discovery that the art was not limited to handprints, but that various designs could be used. A fairly general use was made of certain symbols such as the concentric circle or spiral which copies the pattern water makes when a stone is thrown into it, and consequently is believed to be a sign of nearby moisture. (Fig. 15.) The "mystic maze" of lines perhaps refers to legendary hiding places. Certain map-like pictographs surely are maps of trails now long vanished from disuse. Some of the elaborate pictures that have been discovered are far more descriptive than some of the modern art in our museums.

There is a school of thought, however, which holds that pictographs have no

more meaning than the aimless doodles that we draw on our telephone pads, and yet there is also a tendency today to believe that our own doodles represent subconscious desires, fears, and hopes. Do all the widespread groups of handprints, for instance, mean only that some ancient "Kilroy was here," or will some sensitive and learned brain finally decipher the reasons behind the markings on the rocks and say to us, "Here are the ideas of the ancients, here is archeology as illustrated by the very people we are studying"?

Until that happens, what can we learn from pictographs and petroglyphs? Well, we learn to use our own imaginations, for one thing. The little fellow known as the "hump-backed flute player," for example, what does he really represent? Is he a sort of Pied Piper? Or could it be that he is swallowing a wand instead of playing a flute? Is he a clown character, or does he represent some solemn ceremonial being? (Figs. 26 and 33.)

Do we imagine that pictures of deer, birds, and so forth, mean that these crea-



*Pictograph: a picture representing an idea, as in primitive writing. Petroglyph: a rock carving, especially a prehistoric one. (Webster's Dictionary. See definitions given near end of article for more common distinctions. Ed.)

Fig. 20. The ubiquitous handprint is found everywhere. These are at Steamboat Springs.



Fig. 21. Ancient pictograph in red and white from Steamboat Springs.



Fig. 22. Dancers and water sign seem to go together.



Fig. 23. Ancient colored figures on sheltered rock face near the abandoned pueblo of Abo, New Mexico.

tures were once plentiful in the region where such pictures are seen? Or, conversely, does it mean that they must have been scarce, and the pictures were drawn in the hope of bringing them back in abundance through magic means? (Fig. 12.)

Groups of people, we think, must mean a ceremonial gathering perpetuated on the rocks, and certain oddly represented figures must be medicine men — but are they, really? (Fig. 24.) It's interesting to guess, and we may come closer to the mark than we know, but it is guesswork.

Take, for example, the three "turkeys" painted on the wall of the famous ruin of that name near Canyon de Chelly. They are sometimes considered to be not turkeys, but gourds. (Fig. 25.) A very similar pictograph not far from the same area looks more like a dove than either a turkey or a gourd. If the original artists could tell us, perhaps we would find that they mean none of these things, but something else entirely.

People are depicted in various fashions according to the locality of the pictographs. Some are triangular with great wide shoulders, others are the sort we call "stick figures." There are all stages between the two. (Fig. 32.)

An outstanding example of variety in figures is found near Galisteo, New Mexico, at the San Cristóbal ruin. The rocks back of the ruin are covered with prehistoric figures, pecked through a black covering so that the light stone below shows through very distinctly. Animals, snakes, and people are shown among these pictures which are of special interest because they are so varied and in such profusion. (Fig. 26.)

The same is true, though in less measure, of the pictographs on the rocks back of the Great Kivas ruins on the Zuñi reservation. Here odd characters are engraved on the rocks, as well as those easily recognizable. (Fig. 17.) A feature of great interest at the Zuñi location is the presence of two rock overhangs under which have been painted the masks of the kachinas common to Zuñi ritual today. In

Editha L. Watson

A Biographical Sketch

Mrs. Editha L. Watson was born in Denver. There at an early age she acquired an interest in her Indian neighbors and their ancestors. She studied archeology under the direction of the Smithsonian Institution's Bureau of American Ethnology, and later did some excavating in the Mimbres region.

She later joined the Information Division of the Bureau of Indian Affairs, serving first in its central office, then the Phoenix area office, and finally in the Navajo Indian Reservation office. In the last office she served the Bureau, the Public Health Service, Cornell University, and the tribe itself.

As an information specialist she often has been sent out to give talks before various organizations, has written newspaper articles and magazine features, and has answered hundreds of letters concerning her friends, the Indians.

a sense these are also pictographs since they depict purely Indian themes, although they are only a few years old. (Figs. 27 and 28.)

Perhaps pictographs and petroglyphs should be considered as such only if they are prehistoric. However, the transition from ancient times to modern is in some cases so gradual that this would be drawing too firm a line. While a pictograph may have been made in historic times, it may still be completely Indian in meaning, as in the case of the Zuñi paintings. Such would also be the case with the painted rocks of Abo.

Not far from the abandoned pueblo of Abo, in central New Mexico, is a sheltered rock face on which several colored pictures have been made. Adolph Bandelier, in his *Final Report* of the early 1890's, describes this place. After telling

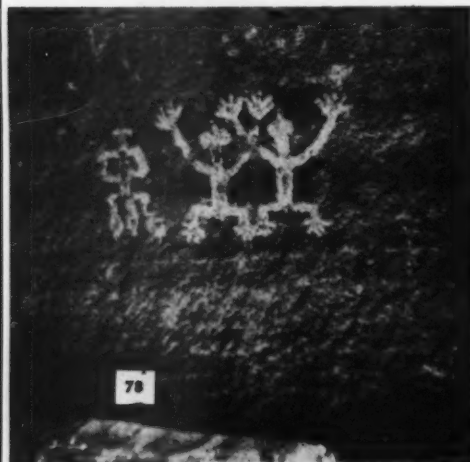


Fig. 24. Odd medicine men, painted in ochre.



Fig. 25. Three turkeys (or three gourds?).

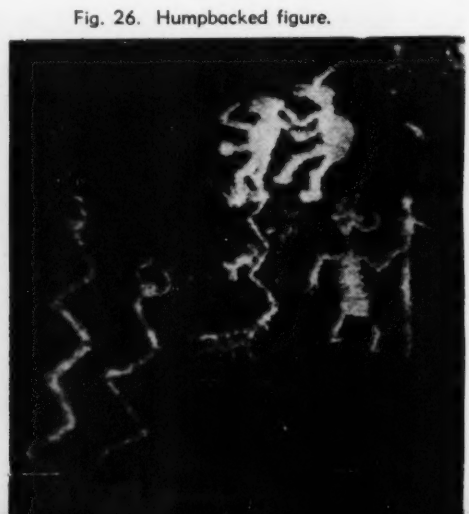


Fig. 26. Humpbacked figure.



Figs. 27 and 28. Katchina masks from the bluffs overlooking the Great Kivas.

would inscribe the symbol of his clan on the rock. If he made other journeys over a period of years, he drew the same symbol alongside the former ones, so that in some cases a long row of bows, bear's paws, corn plants, etc., would show that one man belonging to such a clan had made the ceremonial journey many times. Many of the clan marks can still be identified. Some are now obsolete, showing that the salt journey was a very ancient custom. (Fig. 19.)

There is a definitely modern petroglyph near a spring on the Navajo reservation, east of Fort Defiance, Arizona. We are told that a great Yeibichai dance was once held there. Someone has pictured the entire line of dancers, showing the foxtails, the two tall feathers so characteristic of certain of the costumes, and also the square frame held by one of the dancers. (Fig. 18.) Unfortunately, this pictograph is weathering away. To get a good picture I had to outline the figures carefully with chalk. On my last visit to this site I noticed that the chalk marks had been entirely washed away by rain.

In several places through the southwest, beautiful and elaborate petroglyphs and pictographs of purely geometrical design are found. One such, painted in white on a rock face in a little canyon near Canyon de Chelly (Fig. 32) is almost duplicated by a pattern pecked on the back wall of a sheltered overhang not far from Window Rock, Arizona. It is interesting to speculate whether these two designs, so similar in concept and so neatly executed, are the work of one person, even though there are many miles between them.

In the same little canyon are two examples of the figures which intrigue me most of all — the two-headed person. One is painted in yellow and red (Fig. 16); the other is in white. A rock covered with pictographs pictured in the *National Geographic Magazine* a year or so ago also showed one of these two-headed

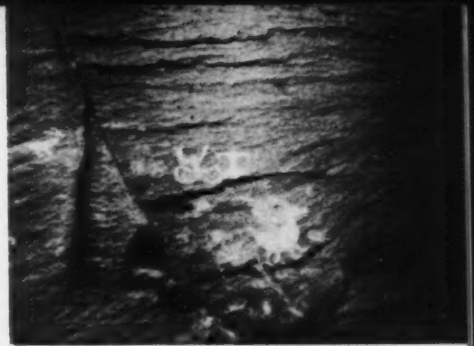


Fig. 29. If we could only decipher the meaning.



Fig. 30. A clawed animal from the San Cristóbal ruins.



Fig. 31. Surely this means something, but what?

Fig. 32. (Right) Fine geometrical designs in the Canyon de Chelly. (Left) Closeup of

the same. Note in particular the figure indicated by the arrows.



about some of the figures, in particular a costumed man with a snake, he mentions that "such records . . . were usually executed whenever a pueblo was to be forever abandoned." He places the date of these paintings at about 1670. (Fig. 23.)

If we only knew, there must be pictures in other locations, made at far earlier times, that were placed there for the same reason. Often it is from such early historic material that we learn a great deal pertaining to the more distant past.

A set of petroglyphs which was begun in ancient times and has been continued to fairly recent ones, is on the so called Clan Rocks near Highway 89 in northern Arizona. Here certain of the Hopi people rested annually on their way to and from a cave on the Colorado River, from which they formerly obtained salt. Each man

people.* The person is always depicted with broad shoulders, certainly a necessity to support two heads, and a triangular torso.

What does this figure mean? Here one cannot even guess, but the fact that there are such pictures scattered about the southwest surely indicates the prevalence of a legend, perhaps about such a being. I am very interested in collecting pictures and descriptions as well as locations of these two-headed figures.

So we have run the gamut of prehistoric pictorial ideas, from handprints to two-headed beings. That they all mean something, there can be little doubt. If they are preserved for study, it may well be that in time we will find out what they meant to the people who made them, and so add immeasurably to our knowledge of those who have gone before us.

*National Geographic Magazine, December 1958, page 816. Other recent National Geographic illustrations of pictographs and petroglyphs are as follows:

May 1958, p. 620, Dinosaur National Monument, Colo.; p. 641, Petrified Forest National Monument, N.M.; p. 698, Tircchaoumine, Algeria. October 1956, p. 501, Hot Springs, S.D. February 1956, p. 220, Virgin Islands.

Photographing Petroglyphs

One of the most difficult archeological subjects to photograph for magazine reproduction is petroglyphs. Often through the view finder of a camera a petroglyph will show quite clearly, yet a black and white print, unless specially processed on a contrasty paper, will be very gray and too indistinct for making a halftone.

The same is true of reproducing a color slide in black and white. In color a petroglyph may show up clearly because of the color itself, yet in black and white, the grays will be too similar to provide sufficient contrast.

One way of bringing out a petroglyph more clearly is by side lighting. By plac-

ing a light source very close to the plane of the petroglyph but out of range of the camera, shadows will be formed which may reproduce the petroglyph clearly. This technique will not always work for several reasons however.

Many times in the field the photographer will not have a light source that can be placed in the proper position for side lighting. In some instances the petroglyph may be on a curved surface, either convex or concave. In either case a side light would not work well. In the case of petroglyphs in which the pecking or carving is not very deep it is often difficult to obtain proper shadows even with extreme side lighting.

Because of the difficulties of side lighting just mentioned, another technique is much more common — that of chalking.

For this method, the photographer should have a box of pure white chalk. A whole box is suggested because a large amount may be needed, more than one would ordinarily expect.

Chalk, if it is the pure schoolroom variety, contains no grit or foreign substance and will not damage a petroglyph.

If the petroglyph is in a park or if there is a custodian nearby always ask permission to chalk the picture. If the custodian is hesitant about granting permission, assure him that the chalk will do no damage and the first rain will wash away all traces. If water is nearby you could also agree to wash the chalk off at once. In most cases the custodians will be familiar with the use of chalk in petroglyph photography and will offer no opposition.

If the reader doubts the value of chalking a petroglyph, it is suggested that he refer to Figs. 1 and 2, page 18 and 19, of the December 1960 SCIENCE OF MAN. Figure 1 shows a buffalo chalked in. Figure 2 is the same petroglyph with a man and some hands chalked in. Notice that

the man and the hands were almost invisible in Fig. 1. (If sufficient water had been close at hand, it would have been better to wash the chalk off the buffalo before chalking the hand and the man.) A comparison of these two photographs should be sufficient to convince anyone of the value and necessity of chalking petroglyphs before taking pictures for reproduction.

Do not chalk pictographs, however. The pigment, in most cases, will be sufficient to obtain the necessary contrast. Furthermore, the chalk may cause the pigments to flake off, thus ruining the old picture.

Petroglyphs or Pictographs

Petroglyphs and pictographs are often confused. Petroglyphs were made by pecking or carving a rock with another rock. Pictographs were made by painting with pigments mixed with what may have been animal grease. [Remember petroglyphs - pecking and pictographs - pigment. Ed.] Rock painting is still practiced by the aborigines of Australia.

The petroglyphs or prehistoric carvings on rocks were usually designs and figures and are universally distributed. They are probably the oldest existing form of art but are usually unnoticed by most folks except archeologists, prospectors, and rockhounds.

Later in history, when it became necessary to communicate with people, our prehistoric ancestors invented pictures or signs to tell a story. Eventually they began writing in pictographs. Then, since the figures in the picture were intended only as a means of expression, they were no longer required to be true to nature, as before. It was enough that they be recognized for what they represented.

Further progress was made when people drew simple, stylized designs to represent whole ideas. This is the kind of writing the Chinese still use. About 600 years before Christ, the Egyptians began making symbols to represent consonant sounds and this was the beginning of the alphabet.

It has been said that the Mayas first invented writing in the Americas but no one knows just when. Knowledge of picture writing spread from one Indian nation to another, each making changes and improvements.



Fig. 33. A group of pictures from Little White Horse Canyon, featuring the hump-backed flute player. (See Fig. 26.)

(Another pictograph article will be found on page 98.)

THE HULA

The Hawaiian Sign Language

by Joseph E. Vincent



Lovely hula hands,
Graceful as a bird
in motion,
Gliding like a gull
o'er the ocean,
Lovely hula hands.
Kou lima nani e.

Telling of the rain
in the valley
And the swirling winds
o'er the Pali,
Lovely hula hands,
Kou lima nani e.

©R. Alexander Anderson

the heels, legs and knees in rhythm with the music. While these parts remain motionless, the dancer moves her hips in a rotary motion in time to the music. If keeping time with her knees, they do not necessarily move in the same direction as the hips. The sketch drawn on the photograph, Fig. 1, illustrates the movement.

Figure 2 shows the arm sign for moon. It is a circle made by the two arms raised in front of the body. At the same time the head and eyes are tilted up as though looking at the moon in the sky.

Occasionally in a Hawaiian love song the singer may need the word for a guitar or ukelele. To express this idea, the dancer holds her arms in the position she would use if she were actually holding a guitar, and at the same time, looks down at it (Fig. 3).

Fish play an important part in the lives of the islanders. It is an important food. In song it may mean other things — speed, beauty, or motion. To express the word "fish," the dancer places her right hand on top of her left, palms down, and in front of her (Fig. 4).

Lovers in many countries have sung of ships, since ships either separate them or bring them together again. A ship is expressed by placing the two palms together waist high in front of the body. If movement or sailing is to be expressed, either a slight or a rapid motion of the two hands, still held together, will express it. (Fig. 5.)

Aloha (love or goodbye) is indicated by holding the left hand in front of the body, waist high or slightly higher, while touching the tips of the fingers of the

The hula of the Hawaiian Islands is one of the most expressive dances known. The use of the hands to convey a meaning may well be compared with the Indian sign language or with dactylology (deaf mute hand signs). While the last two are used to communicate, the Hawaiian hula hand and arm movements are poetical or lyrical.

In Hawaii the hula is performed mainly by girls and women. It is poetry of motion; the hands express most of the meaning. The hula of Tahiti and Samoa and other Polynesian Islands farther south is faster, often without hand movements, and is performed by both sexes.

As a child, I remember quite well when the hula was first brought to this country. By many ill informed persons of that day the hula was regarded as

something indecent, like the "hoochie-koochie" and other sensual dances. Today, fortunately, we know it for what it is, a song, often a love song, in motion.

Besides the hands, there are certain motions of the feet and body. These too, may be used to convey an idea. For example, moving the body and feet in a certain turning motion too difficult to describe in words, is called "Around the World" by hula students. It is used to express travel, as travel through the islands or for greater distances.

One of the movements that was mistaken for vulgarity in this country in the early days was the rotating action of the hips. To execute this properly, the head, neck, and shoulders remain motionless. The feet, too, remain mainly in place, although there may be some movement of



Fig. 1. The hip movement.

right hand to the lips as though to kiss them (Fig. 6).

No love song would be complete without memories. To convey the idea of "remember," the dancer holds the left hand in front of her body, palm down, cocks her head to the right, placing the right hand so that the elbow touches her left fingers while her right forefinger touches the temple (Fig. 7).

Like ships, the oceans, too, can both separate lovers and bring them together

Fig. 2. Moon.

again. To say "ocean" with the hands, the dancer leans forward slightly, holding the arms in front of her, palms up. In Fig. 8, she is making the sign for ocean in one of the seated dances. She is also using the "gourd" (meaning a rattle here) in her right hand. Being seated and holding the gourd, however, do not have any significance in relation to the word-sign for ocean.

There are very few birds in the Polynesian islands but the sea birds. It is a sea bird that a Hawaiian thinks of when he speaks of a bird. The arms held so as to appear like a sea bird executing a gracefully banked turn suggests a bird (Fig. 9).

No romantic song or poem would be complete without flowers. Flowers are expressed by holding the hands in front of the body, elbows close to the hips, fingers cupped upward. (Fig. 10.)

Many Polynesian islands are low coral reefs and the inhabitants do not know the mountains. The Hawaiians are more fortunate, however. Their islands are gigantic mountains on the sea bottom, extending above the water line. The Hawaiians do know the mountains. To speak of mountains, the dancer holds her hands up in front of her, but slightly to one side. One hand is about face high, the other higher, the fingers slightly bent. The angles portrayed by the two hands and arms express the idea of ruggedness of their mountains. (Fig. 11.)

The model in the illustrations for this article is the author's daughter, Judith Diane, or Tiani, one of whose hobbies is hula dancing. The background for the pictures is not Hawaii but the backyard garden of the Vincent family in Garden

Fig. 3. Guitar.



Fig. 4. Fish, or fish swimming.

Grove in sunny California. Loving the tropics very much, the family keeps its back yard well stocked with tropical and semitropical plants.

The round bushy object in Tiani's hand in Fig. 8 and on the ground in the others, is a decorated Hawaiian gourd rattle, popularly called the "gourd." Beside it in most of the pictures is a bamboo rattle used in some of the dances. There are other objects that may be used in the dances. Four flat stones about twice

Fig. 5. Ship or ship sailing.



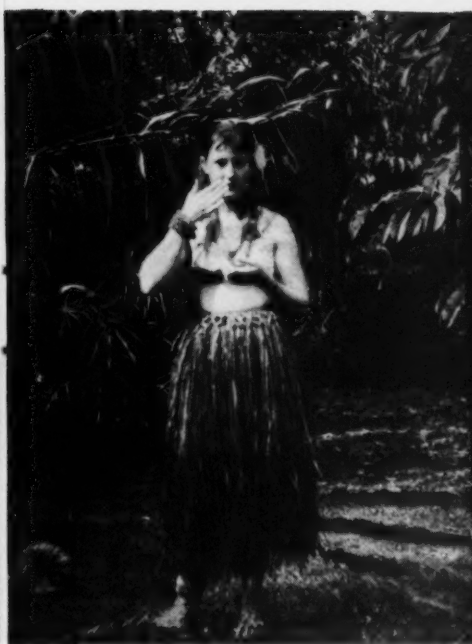


Fig. 6. Aloha or love.



Fig. 8. Ocean.



Fig. 10. Flowers.

the diameter of a silver dollar are used sometimes, two in each hand, to make a clanking noise somewhat like a pair of castanets.

A flower behind the ear has a definite significance to Polynesians. Behind the left ear it means that the girl does not have a regular admirer. Behind her right ear it means that she does have one. The young men also wear flowers behind their ears with the same meaning. Tiani

wishes that it be known, however, that the flower she is wearing is strictly for illustrative purposes and has no real significance.

The word signs and motions illustrated above are but a few used in the hula dances of the Hawaiian Islands. The language of the hula, like any other language, has more than one symbol for a word in many cases. Should the reader see or know other hand symbols for the

words illustrated, he must realize that there are actually two "words" for the same idea and that the Hawaiian hula is truly a versatile language.

The Hawaiian language has only twelve letters, five vowels and seven consonants. Most of the other Polynesian dialects have about the same number.

Fig. 7. Memories or remember.

Fig. 9. Bird.

Fig. 11. Mountains.



The early peoples of our Southwest had much in common as you can see by this story of —

ANCIENT SEED GATHERERS

THE COCHISE COMPLEX

By George A. Agogino

The Folsom finds of J. D. Figgins in 1926 and 1927 firmly established for the first time the existence of the paleo-Indian in North America. This discovery at Folsom, New Mexico, and subsequent finds established the existence of the Pleistocene. For almost a decade following the excavations of Folsom, it was believed that the later agricultural Indians evolved from the "classic hunters" at a time when either by choice or necessity they abandoned their hunting economy.

Then in Santa Fe, New Mexico, at the annual meeting of the Southwestern Branch of the American Association for the Advancement of Science in 1935, Bryan Cummings reported an excavation he had done in southeastern Arizona in 1926. The significance of this discovery had not been appreciated for almost a decade and even Dr. Cummings had deferred stressing the implication of the excavation.

A mammoth skull had been found *in situ* in an arroyo in Sulphur Spring Valley, twelve miles northwest of Douglas, Arizona. The original discovery was made by a group of schoolchildren of the Double Adobe School who found an eroding mammoth tusk protruding from the arroyo wall. Byron Cummings directed the excavation and removed the creature's skull. In a bed underlying the mammoth remains was an older stratum that revealed crude artifacts as well as bones of extinct varieties of horse and bison.¹ The associated fauna indicated that the tools were made by paleo-Indians who seemed to be as ancient as the Folsom hunters. The artifacts, however, were largely milling stones. The logical inference is that seed-gathering as well as hunting was practiced by these early Americans.²

Byron Cummings had made two brief reports of the excavation;^{3,4} neither had appeared in an archeological journal and little archeological interest was aroused until the 1935 meetings. Then, however, interest was renewed in this area which had been neglected for almost a decade. In December 1935, Emil W. Haury and E. B. Sayles began a concentrated reconnaissance of southeastern Arizona and southwestern New Mexico in search of similar cultural phenomena. The following year Ernst Antevs of the Carnegie Institution of Washington, D.C., joined

the investigators.

Since they found most of the cultural material in arroyo banks, there was some question that the material might be of a redeposited nature and not as old as first suspected. However, as research progressed this theory was dispelled. Hearths lined with stone remained undisturbed *in situ* in the arroyo walls. Had they been redeposited, charcoal and hearthstones would have been widely intermixed or scattered as expected in redeposited sites. A careful examination of the lithic artifacts showed no evidence of their being waterworn, a phenomenon usually exhibited by redeposited artifacts.⁵

Three Horizons

Following five years of reconnaissance and excavation, three developmental stages of these paleo-Indian seed gatherers were established. The entire complex was known as the Cochise Culture after the name of the county where the original type station was first located.⁶

Sulphur Springs Period

The earliest horizon is called the Sulphur Spring Period.⁷ At this level milling stones appear as the commonest artifact. Grinding was done on sandstone metates using a small handstone called a *mano*. The metates were thin and flat. The manos were of the small one-handed variety. Apparently both show completely flat grinding surfaces except as concavities were formed by use. The chipped artifacts were extremely crude. They were plano-convex in shape, percussion flaked, and were probably used as choppers, knives and scrapers. Many hammerstones exhibiting use marks also appear.⁸

Early reports stressed the fact that no projectiles are found in the Sulphur Springs Horizon. However, some hunting must have occurred, since the bones of mammoth, horse, bison, dire-wolf, prong-horn antelope, and coyote are found associated with Sulphur Spring artifacts. This led to the speculation that either the animals were killed in a manner that did not require the use of projectiles or that perishable points of wood or bone were used in the hunt.⁹ However, in 1955 E. B. Sayles in a report at the Great Basin Archaeological Conference announced that lithic projectiles had been found in the Sulphur Spring Horizon at

Double Adobe. While no comprehensive report has been published, we have a brief description of two point types from this cultural level. One projectile is leaf-shaped while the other is stemmed and barbed. Both types are made from flakes.¹⁰

The estimated age of the lower cultural level at the Cochise sites is confusing. It is based on association with extinct fauna and the geological hypothesis that the culture thrived during a wet period believed to be the Provo Pluvial. During this period Lake Cochise, now almost completely dry, covered approximately 120 square miles, and Whitewater Creek, now an ephemeral stream, had a permanent flow.

Charcoal from the fire hearths shows an almost exclusive use of hickory, a tree that cannot survive in the arid area today. Ernst Antevs geologically dated the Sulphur Spring Horizon as at least 9,000 years old and perhaps a great deal older. Published radio-carbon dates, however do not verify this. The oldest published radiocarbon date, 7,756 years B.P. \pm 370 years, comes from the Sulphur Spring Horizon.¹¹ This date certainly is not compatible with the faunal and geological evidence, and the conflict is disturbing and not easy to explain. Either our radiocarbon samples from this area are not valid for some unknown reason, or the fossil fauna survived in this area is a later period than previously assumed.

Chiricahua Period

The middle of the three Cochise culture horizons is called the Chiricahua Period. The majority of these sites are found along the eastern slope of the Chiricahua Mountains. At some locations the Chiricahua Horizons rest directly over the Sulphur Springs Horizon and there is no distinctive break from one cultural horizon to the other. Plano-convex tools continue, although bi-faced percussion and pressure flaked implements also are present. Both metates and manos show evidence of purposeful shaping. Mortars and pestles also occur at this level. The heavier bi-faced tools are not retouched. Smaller implements, such as knives, made from flakes, however, are retouched along one or both edges and occasionally exhibit pressure chipping

COCHISE CULTURE — Three Stages⁵⁷

(Oldest at bottom — Read from bottom up)

Stage	Characteristics	Estimated Dates
San Pedro	Grinding stones, milling stones with deep basins. Hand stones larger than before. Projectile points pressure flaked with broad lateral notches.	Southern Arizona sites — 5,000-2,500 years old. Bat Cave — 700 B.C. to A.D. 500. Ventana Cave — Considerably less than 4,500 years old.
Cultural Break		
Chiricahua	Grinding stones, milling stones larger than those of Sulphur Springs, and have shallow basins. Projectile points scarce and possibly intrusive. Pressure flaked. Some leaf shaped, one serrated. Some with base and lateral notches. One fluted point.	Southern Arizona sites — approx. 6,000 years old. Wet Leggett — 5,000 to 3,500 years old. Bat Cave — 5,000 to 3,000 years old. Ventana Cave — Less than 4,500 years old. Bed III, Bat Cave — 5,931 ± 290
Sulphur Springs	Grinding stones, thin, flat milling stones and small hand stones.	More than 10,000 years old (Wormington ⁵⁸) 9,000 or older (geological, Antevs) 7,756 B.P. ± 370 (oldest published radiocarbon)

over the entire surface.¹² Other artifacts include scrapers, choppers, knives, and hammerstones.

Projectile points found in this level were first believed to be intrusive. They are pressure flaked and made of finely grained quartzite, a raw material not utilized in the manufacture of other Chiricahua artifacts. Recent evidence supports the conclusion that they are an integral part of the Chiricahua stage of the Cochise culture.¹³ The majority of the points are about an inch in length and triangular in shape. They have broad lateral notches and exhibit indented bases. Occasionally crude unstemmed fluted points as well as serrated projectiles are found in this cultural horizon.¹⁴ The relationship of the latter points cannot be established at this time.

San Pedro Period

The final stage of Cochise culture is known as the San Pedro Period.¹⁵ Sites are located mainly along the San Pedro River and are found also in Cave Creek and the San Simon Valley. The type station [type station—the area used for comparison. Ed.] is located on the San Pedro River near Fairbanks, Arizona. In this area San Pedro sites have never been found directly overlying Chiricahua material, and there appears to be a definite cultural break between the two horizons.¹⁶

Milling stones still appear to be important to the San Pedro economy although these stones appear far less frequently than do grinding artifacts. Heavier tools like plano-convex and bi-faced axes, scrapers, and hammerstones are often percussion flaked, while knives and projectile points show excellent pressure flaking. The basic point type of the San Pedro stage is an elongated triangular projectile with broad lateral notches that produce an expanding stem.¹⁷

At San Pedro sites in Cave Creek and

the San Simon Valley, hearths and storage pits have been found dug into [or superimposed upon] a hard-packed earth layer. Apparently they are house sites. The packed floor of the structure is oval in shape and frequently there is a step or bench along one wall. The floor appears to be subterranean, and the bench or step may have been used as a way to gain access to the surface. Nothing at all is known of the nature of the walls or roof of the dwellings.¹⁸

Later Cultures

The hypothesis today is that the Cochise culture was the forerunner of the later southwestern agriculturalists, the Mogollon, Hohokam and perhaps the Anasazi. As more sites are discovered and more cultural connections suspected we find we must make a reevaluation of Anasazi, Hohokam and Mogollon. They no longer seem to be separate and distinct as thought in the past. All three may be rather recent variations of a single cultural base, the Cochise complex of the Southwest.

The long neglected Cochise complex also challenges extreme geographical determinism and the stereotype of the paleo-Indian as existing solely for the hunt. We now know that two economic traditions existed side by side in the dying stages of the last glacial period: one an economy dedicated to the hunting of Pleistocene fauna, and the other dependent upon the gathering of wild seeds. Each group utilized the same physical environment but made use of different resources for its way of life. From the physical evidence left by these respective groups, I believe each must have evolved independently. As time passed and contacts increased, they expanded their use of natural resources by borrowing aspects of the other group's economy until both groups became less distinctive economically.

In the Southwest, Cochiselike cultures

have been found outside of the restricted southwest Arizona and southeast New Mexico region. Apparently many such sites are to be found in the Southwest, but for years they were neglected as research was directed to the more glamorous "classic hunting" cultures. Only in the last decade have extensive reconnaissance and excavation given the paleo-Indian seed-gathering sites the archeological perspective they seem to deserve.

Wet Leggett and San Augustin

In 1949, Ernst Antevs, Paul Martin, and John Realdo reported finding typical Chiricahua artifacts in an arroyo ten miles from Reserve, New Mexico. This site, known as the Wet Leggett site, is located in the southwestern part of the state but still outside of the original Cochise region. Artifacts included metates, manos, choppers, knives, scrapers, and gravels. A single projectile was recovered from this site. This point was typologically similar to points found in the Chiricahua level at the original Cochise sites in southeastern Arizona. One possible house site was uncovered although little could be learned of the nature of the structure as it had been almost completely destroyed by erosion when discovered.¹⁹ Charcoal was obtained from a tributary arroyo that seemed to exhibit the cultural strata and this charcoal yielded a date of 4,500 years B.P. ± 680 years.²⁰

In the same general area as the Wet Leggett site is a broad flat expanse today known as the Plains of San Augustin. This region consists of several dry lake beds, the largest being the pluvial Lake San Augustin. This lake bed is thirty-four miles long and eleven miles wide and normally is dry and virtually without vegetation.

Erosional blowouts are found on old beach levels surrounding the basin. Points of the "classic hunters" intermixed with milling stones and projectiles reminiscent of Chiricahua and San Pedro site material have been found in blowouts of the two lower terraces of the lake.²¹ Because blowouts normally lack good stratigraphy, one cannot determine which of the many cultural groups represented is the oldest.

The lake terraces provide our best available guide to the antiquity of the artifacts. Both "classic hunting" and "Cochise" cultural items are found concentrated on the two lowest terraces, suggesting that these groups camped on the beaches of a dying but not completely dried lake.²² Two pluvial periods have occurred in the Southwest in the last 10,000 years. The first is known as the Great Pluvial and occurred 10,000 years ago, while the more recent wet period known as the Little Pluvial occurred 3,000 to 4,000 years ago. At the present time geologists and anthropologists are not certain whether the eroded beaches of Lake San Augustin belong to the Great

or Little Pluvial although the majority opinion indicates that the beaches are associated with the Little Pluvial.²³

Bat Cave

Bat Cave in the southwestern part of the Plains of San Augustin, is not a true cave but a huge rock shelter, a natural amphitheater. Excavations under the direction of Herbert Dick of Harvard University were completed in 1952.

The rock shelter exhibited three stratified levels. The bottom, and presumably the oldest, level was completely sterile and well may have been deposited under water in Pleistocene times by water action from pluvial Lake San Augustin which probably flooded the cavern at one time. This sterile level is known as Bed I.

The middle level, Bed II, is composed of dust, sand, and rock debris, material that has either been blown into the cave or has fallen from the roof of the rock shelter. Artifacts have been found in this level and presumably the shelter was occupied while the deposits in Bed II were being accumulated. This layer probably was deposited during the Altithermal.²⁴

Bed III, the top level, is believed to be associated with the Medithermal.²⁵

In the upper part of Bed II and in the lower half of Bed III, projectiles were uncovered that were typologically similar to points found in the Chiricahua stage of Cochise culture. In the upper part of Bed III, San Pedro type projectiles appeared.²⁶ The most ancient examples of maize yet discovered came from the base of Bed III. The material was examined and described by ethnobotanists Paul S. Mangelsdorf and C. Earle Smith, Jr. The maize was both a popcorn and a pod corn and apparently did not have a husk. More recent specimens were found in Bed III; a steady increase occurred in both cob and kernel size. Radiocarbon dates were obtained from hearths in Bed III. The earliest date, apparently associated with the earliest corn and the Chiricahua points, was 5,931 years B.P. \pm 290 years. Both specimens are believed to be of approximately the same age.²⁷

Ventana Cave

Ventana Cave, like Bat Cave, is actually a rock shelter in the rugged Castle Mountains south of Phoenix and east of Tucson, Arizona. The area protected by a rock overhang is divided into two sections by a basalt remnant. The section referred to as the "upper cavern" apparently was the only part inhabited by paleo-Indians. Either the section referred to as the "lower cave" did not exist in ancient times, or entrance to that section was impossible during the paleo-Indian period.²⁸

The lowest bed in the upper cave is a conglomerate. Two doubtful implements have been found in this deposit, one apparently a hammerstone while the other is a basalt chip that could be utilized as either a scraper or a knife.²⁹ Directly

above the conglomerate is a layer of volcanic debris in which were found ninety artifacts in association with the remains of such extinct fauna as wolf (*Canis dirus*), jaguar (*Felis atrox*), ground sloth (*Nothrotherium shastense*), tapir (*Tapirus sp.*), and horse (*Equus excelsus*).³⁰ Many of the bones were split and charred and apparently were the remains of hunted animals.

Two projectiles were found in this horizon. One of these points was leaf-shaped while the other resembled a crude unfluted Folsom. End and side scrapers, choppers, and gravers were also represented. Many flakes were retouched to produce an implement with a sharp cutting edge. One mano and a single hammerstone also were found at this level.³¹ Marine shells, unworked and possibly used as containers, also formed part of the volcanic layer. These specimens were all representative of a single species (*Cardium elatum*) today found only on the coast of California and in the Gulf of California. The closest point where these may be obtained today is at Bahia de San Jorge, on the Gulf of California, ninety air miles from the cavern.³²

Directly above the volcanic bed is a consolidated red brown sand stratum which has produced oval unstemmed projectiles. Triangular points with either parallel sides or expanding stems are also represented in this level. Except for basal notching these points seem to be similar to the Pinto-Gypsum material of California. Some of the projectiles are serrated. Haury calls this cultural horizon the Ventana-Amargosa level, and the triangular points the Ventana-Amargosa type.³³ The use of this term "Amargosa" is unfortunate since it appears in conflicting chronological sequences:

Apparently the present Amargosa I correlate with the first part of what Rogers formerly called the Pinto-Gypsum phase which preceded the Amargosa I phase in the old sequence. Rogers has not published any report on his revision and the situation is completely confused.^{34, 35}

Above the consolidated red brown sand was a talus wedge formed by talus from the mouth of the rock shelter. This layer was largely sterile although evidence of fire hearths, and a few scattered implements were uncovered. No separate analysis was given this material and it was combined with artifacts from the overlying midden.³⁶

The midden that rests on the talus wedge is divided into two parts. The lower portion is perpetually moist because of constant spring drainage. The prevalent projectile of this layer is a triangular point with an expanding stem and concave base. The point type was frequently serrated. These points resemble projectiles found in the Chiricahua stage of the Cochise culture. These points are

also typologically close to Pinto Basin projectiles from southern California. Points that somewhat resemble Gypsum Cave and Lake Mohave types also are found in this horizon. Manos and metates are very numerous and resemble milling stones from the Chiricahua stage of the Cochise complex. These grinding artifacts become less numerous in the upper part of the moist midden. The dominant projectile at this level is a San Pedro type of point. The dry midden exhibits nothing of paleo-Indian manufacture.³⁷ The late Kirk Bryan in his geological interpretation places the entire midden in the post-Altithermal Period which he believes is less than 4,000 years old.³⁸

Pinto Basin

In 1935 Elizabeth and William Campbell published their paper on a series of hearths and apparently associated artifacts found in and about the Pinto Wash, an arroyo located in Riverside County, California. The hearths and nearby blowouts have produced projectiles identified today as Pinto Basin points. They are described as:

Thick, rather short points, slightly shouldered with bifurcated bases. Blade edges are often serrated and sometimes there are some side notches below the shoulders. Many are crudely flaked and some were probably produced by percussion. An effort was made to thin some of the bases. The points range from one to two-and-a-half inches long. These are sometimes called simply Pinto points.³⁹

Apparently associated with Pinto Basin points are other lithic tools including keeled and concave scrapers, long oval knives, and retouched flakes. Milling stones are found in the general site area and probably are part of this cultural horizon. The entire lithic cultural pattern is strongly similar to that of the Chiricahua level of Cochise sites found in southeastern Arizona and southwestern New Mexico.⁴⁰

While the Pinto Basin and Cochise site areas are rather similar typologically there has been considerable difficulty establishing a definite chronological equivalence. Much of this confusion is the result of sharply conflicting geological statements over the antiquity of Pinto Basin material.

Ernst Antevs believes some Pinto Basin sites may be as old as 7,000 to 9,000 years while other nearby sites may be as recent as 3,000 to 4,000 years. Antevs' conclusion is that this basic point type was used over a long period of time in this area, and that some of the arroyo hearths and surface blowouts are pre-Altithermal while others are post-Altithermal.⁴¹ Martin, Quimby and 3,000 to 4,000 years ago.⁴² Malcolm J. Rogers suspects an even more recent date

estimating their age at from 800 B.C. to A.D. 200.⁴³

Point Types

To add to the complexity of the problem most of the artifacts are found in blowouts and in association with other point types. These points include projectiles similar to those found at Gypsum Cave, Nevada, and today identified as Gypsum Cave points, as well as projectiles known as Lake Mohave and Silver Lake points. The last two point types are named after site locations in southern California. Wormington describes these three points in the following manner:

Gypsum Cave Points:

Lozenge or diamond-shaped points with small stems that slope abruptly back from the shoulders to a rounded end forming the butt. They are usually about two to two-and-a-half inches long. These are sometimes called simply Gypsum points.⁴⁴

Lake Mohave Points:

Points characterized by long, slender stems, produced by a very slight shouldering. The blade portion is usually somewhat smaller than the stem portion, and the maximum breadth is generally slightly above the midpoint. The base is rounded. Some specimens appear to have been flaked by percussion, others have a pressure retouch. Points range in length from one-and-three-quarters to three inches. These are sometimes called simply Mohave points.⁴⁵

Silver Lake Points:

Points that resemble the Lake Mohave type but which have less basal taper and more clearly defined shoulders. The area of maximum breadth is somewhat lower.⁴⁶

Many blowouts exhibit all four of these point types and it is difficult to determine the chronological sequence. Martin, Quimby, and Collier explain this confusion in the following way:

The difficulties are twofold. First, the broad sequence of California cultures is in part conjectural. Although reasonably sound relative chronologies based on stratigraphic sequences have been established for some regions, the correlation of one region with another rests on typological comparisons rather than on stratigraphic cross-ties. For this reason possible time lags from one region to another cannot be discerned. Second, there is no reliable basis for assigning an age in years to the various cultural periods. Geological studies of the climatic and other conditions under which various cultural deposits were laid down and of the length of time required for their accumulation have failed as yet to yield reliable results. There is

hope that this approach will eventually produce useful conclusions.⁴⁷

Pinto-Chiricahua Types

Beginning in 1949, Tully H. Thomas and his wife collected surface material from thirty non-ceramic sites within a twenty-mile radius of Concho, Arizona. This area is approximately fifty miles southwest of Holbrook on the southern drainage of the Little Colorado River.⁴⁸ The region today has broad prairies, permanent natural lakes, flowing streams, and an abundance of game. If the climate was roughly similar at the time the implements were manufactured, it certainly would be considered a desirable location. Most of the sites are found on mesa tops overlooking broad valleys.⁴⁹

Four fluted points and a larger number of parallel-flaked and "generalized Yuma" projectiles have been found with points resembling Pinto-Chiricahua and Gypsum Cave types. However, since most of the artifacts are found in blowouts it is difficult to establish that we are dealing with a single cultural horizon. Wendorf and Thomas have grouped the Pinto-Chiricahua and Gypsum Cave points as part of a cultural complex identified as the Concho Complex. Besides projectiles, it includes end and side scrapers, drills, stemmed and unstemmed blades and choppers.⁵⁰

Triangular points that resemble Basket-maker projectiles as well as San Pedro points have been found in the same area but are not associated with the Concho complex. Since this site area has produced projectiles similar to types found in the Chiricahua and San Pedro stages of the Cochise culture, it may be a local variant of the southeast Arizona material. However, the basic economy of the two cultural complexes seems to be different. The Cochise culture had a high emphasis on seed gathering as exhibited by the large number of milling stones discovered associated with this culture. On the other hand few manos and metates are found associated with Concho complex material. Here the emphasis appears to be upon a hunting economy.⁵¹ To add to the confusion, the age of the Concho sites is still uncertain. Many believe it to be post-Altithermal in age which would make it less than 4,000 years old.⁵² If this be true it may not have occupied the same chronological horizon as the Cochise culture and indeed may be a non-ceramic culture rather than a pre-ceramic complex.

Pinto-Chiricahua material has shown up in the Four Corners region. Eugene Botelho of the San Juan Mission near Farmington, New Mexico, has reported finding such points along the San Juan Mission near the valley and north into Utah (Montezuma Wash) and Colorado (Del Norte and Durango). However, little is known of concentrated site areas in this region.⁵³

GLOSSARY

Altithermal — A geological period after the Pleistocene (i.e., in the early Holocene). It is believed to have been warmer and distinctly drier than the present, and is thought to have lasted from approximately 7,500 to 4,500 B.P.

Anathermal — Another period of the post-Pleistocene (in the Holocene). It is believed to have been considerably cooler and wetter than the Altithermal. In some areas there is evidence of greater moisture than at present during most of the period although aridity increased toward the end. It is thought to have existed from 9,000 to 7,000 years ago.

B.P. — Before present. In the case of radiocarbon dating and other similar methods of dating, the B.P. date is often followed by a plus or minus sign (\pm) and a number, which indicates the possible variation from the date given. To derive a B.C. date from a B.P. date, subtract 2000. To obtain a B.P. date from a B.C. date add 2000.

Blowout — A section of land which has been denuded of topsoil and scoured into a more or less bowl-shaped depression by wind action. This term was formerly used to denote a type of volcanic cave.

Midden — A mound usually of shells discarded by early man after use.

Patina — The surface (or surface crust) produced on an object by weathering. Very common in our western deserts. Often mistaken for an ancient floor.

Pluvial (adjective) — The action of rain.

(the Period) — A geologic period of time, rainier than usual. First Pluvial Period, 10,000 B.P., Little Pluvial, 3-4,000 B.P.

Post-antithermal — A geological period after the antithermal.

George E. Fay and William Young operating under an American Philosophical Society grant, have found San Pedro artifacts in blowouts west of Hermosillo, Sonora, Mexico. This material is apparently identical to implements of the San Pedro stage of the Cochise Culture.⁵⁴

Points that fall roughly into the Pinto-Chiricahua typological picture have been located in many widely separated locations in the western United States. Robert Lister has made a search of available literature seeking projectiles that fit the following classification:

A stemmed point with triangular body: stem narrower than the body and usually parallel-sided: base of stem fairly deeply indented.⁵⁵

Not all of these points are identical. Many feature crude percussion flaking while others show refined pressure chipping and excellent secondary flaking. Some specimens have smoothed lateral edges while others do not. Many points are serrated. There is also a great varia-

tion in size. While present estimates of the age of these points do vary widely, it is generally believed that most fall into a time period that places them after the "classic hunters" and before the advent of most western ceramic cultures.⁵⁶

These sites have been found in blow-outs, arroyos, rock shelters and caverns and represent seven western states: California, Arizona, New Mexico, Texas, Utah, Colorado, and Nevada. The association among these sites will not be cleared up for many years but a widespread pattern is beginning to emerge of a Pinto-Chiricahua type of projectile, usually associated with milling stones and other artifacts that can be identified with the Chiricahua state of the Cochise complex. San Pedro artifacts may be distributed as widely but at the present time a definite pattern has not been established. The San Pedro projectiles are less distinctive in appearance than Chiricahua points, and in the Southwest in particular, San Pedro points could easily be mistaken for Anasazi projectiles.

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- 34 Wormington, op. cit., 179.
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- 54 "Notes and News," *American Antiquity*, XX, No. 1 (July 1954), 97.
- 55 Robert H. Lister, "The Stemmed, Indented Base Point, A Possible Horizon Marker," *American Antiquity*, XIV, No. 3, 191.
- 56 Hurt and McKnight, *American Antiquity*, XIV, No. 3, 191.
- 57 Most of the data for this chart are taken from Wormington, op. cit., p. 166.
- 58 Wormington, op. cit., p. 166.

Archaeology or Archeology?

We have received several letters criticizing us for our seeming inconsistency in the spelling of "archeology." In issue number 1, we used the older and more established form of the word "archaeology." At that time several readers called our attention to the fact that many colleges are now using the newer and simpler spelling, "archeology." After a conference we decided to change to the simpler spelling, omitting the "a" in the Greek "æ" combination. This simpler form was used in issue number 2 and will be used in succeeding issues. The same is true of the adjective "archeological" ("archaeological").

The seeming inconsistency occurs, however, in quotations and in names of archeological organizations. Regardless of how we spell the words "archeology" and "archeological" ourselves, in direct quotations, we must spell those words as the original writer spelled them. Likewise, regardless of how we have agreed to spell the words, in referring to the proper names of archeological organizations, we must spell the word the way the body officially spells it.

Thus in the same article, or even in the same paragraph, the word may be spelled two ways. This is not our inconsistency but rather an inconsistency in our mother tongue.

Just how good a red-hot idea is depends on how much heat it retains when someone throws cold water on it.

Until the discovery of the Isaiah scroll, probably the oldest copy of a book of the Bible that we had was from the ninth century. The "Isaiah scroll" however, dates from the first century B.C., at least 900 years older than any we had before. Thus we are getting nearer and nearer the original sources of the Bible.

Gypsy Harvest Dance

In the Po Valley of Italy, on September 7, the gypsies still have their Nude Virgin Dance. One of the most beautiful girls of the community, sometimes more, dances entirely in the nude by the harvest moon, to appease the ancient river gods. The ceremony dates back at least to the 14th century and has taken place yearly ever since. At the time when it was brought to the Po Valley the Duke of Mantova set aside a bit of land between the Po and the Mincio Rivers for the perpetual use of the gypsies as a campsite. Although the ceremony is old, visitors now arrive not only in horse-drawn vehicles, but in trucks and modern limousines.

Student Aids

In this issue will be found the first of a series we have called STUDENT AIDS. Each month these AIDS will be published on pages back to back. This will allow these pages to be removed so that they may be punched to fit a standard three-hole notebook. Before tearing out the page, however, it is suggested that the student who wishes to keep the rest of his magazine intact, run a strip of glue along the other half of the sheet (page 92 in this case), so that when the AID is torn out the opposite page will not fall out. (This process is called "tipping in" the opposite page. The proper place to apply the glue is indicated in the center margin near the "trough" in this magazine on page 89.)

The AID given in this issue is a chart of the Indian Groups (so called "tribes") of South America. Besides being helpful in the study of the cultures of South America in anthropology courses, it should be found useful in locating the various groups when reading the *National Geographic Magazine*, and the many other magazine studies dealing with this area, when listening to television travelogs, or even when reading newspaper accounts.

Other student aids to appear in future issues will include: "Culture Areas" and "Linguistic Groups" according to Dr. W. W. Taylor, "A Comparison of Geological Time and Culture Periods," and "A Comparison of Pyramids of the Old World with the Mounds of the New."

Anthropology instructors (and students) are urged to suggest other charts not readily available in standard textbooks that they would like to see in print.



Outline map copyrighted by A. J. Nystrom and Company. Used by permission.

KEY TO SOUTH AMERICAN TRIBES

ANTILLEAN

1. Carib

CHIBCHAN

2. Cuna
3. Chibcha

ANDEAN

4. Quito
- 5., 7. Quechua (so called Inca)
6. Aymara
8. Atacama
9. Calchaqui

AMAZONIAN

10. Bare
11. Arawak¹
12. Wapisiana
13. Tama
14. Macusis
15. Moxos
16. Witoto
17. Boros
18. Jivaro
19. Manaos

20. Apiaka

21. Xinguanos³ (See special listing at the right)

22. Piro
23. Chacabo
24. Bororo
25. Tupí
26. Tupinamba
27. Kaingua

EAST BRAZILIAN

28. Canella
29. Cayapo
30. Kaingang
31. Bakairí
32. Charante
33. Botocudo
34. Cayapo

CHACO

35. Choroti
36. Mataco
37. Toba
38. Pilaga
39. Macori
40. Abipone

PATAGONIAN

41. Pehuenche
42. Puelche
43. Tehuelche

ARAUCANIAN

44. Araucan

SOUTHWESTERN

45. Chono
46. Alacalaf
47. Yahgan

ONAN

48. Ono

OTHER TRIBES OF THE MATO GROSSO living in the vicinity of 21 and 24.

49. Chavantes
50. Guató
51. Umotina
52. Nambicuara
53. Iranxe
54. Bacairí

MISCELLANEOUS

55. Ciboney²

NOTES:

¹The Arawaks at one time inhabited the Antilles and Florida simultaneously with the Caribs. The Arawaks were more "advanced" than the Caribs.

²The Ciboney were the aborigines of the West Indies and are now extinct.

³Tribes of the Upper Xingú (Xinguanos)

A. Trumai-speaking tribes

- a. Trumai

B. Tupí-speaking tribes

- b. Camajurá (Camaiurá, Camayurá)
- (1) Auetí village
- (2) Ipavá village
- (3) Tuatuarí village

C. Carib-speaking tribes

- c. Calapálo
- d. Cuicúra
- e. Náhuka
- f. Matipú
- g. Tsáva
- h. Naravúti

D. Arawak-speaking tribes

- i. Waurá
- j. Iwalapetí
- k. Mehindúcu
- l. Custenau

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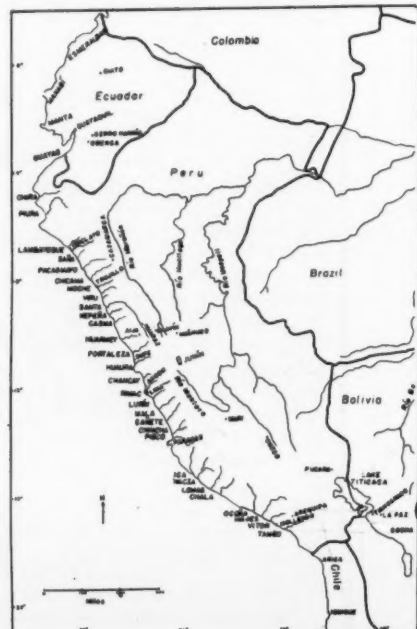
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Blocks refer to the following tribes or groups of tribes: 1, the Guató; 2, the Bororo; 3, the Umotina; 4, the Na; 5, the Iranxe; 6, the Bacairí; 7, the Upper Xingú tribes.

Map of Inca Area.



Lost Cities of Chiapas

By Fredrick A. Peterson

Field Director, New World Archaeological Foundation

Part II

In the preceding issue, Fredrick A. Peterson, present field director of the New World Archaeological Foundation, told of the exploration of the ancient ruins in the La Venta Canyon area northwest of Tuxtla Gutierrez, Chiapas. (See maps on pages 53 and 55.) The field party of the Foundation had been excavating for several years at Chiapa de Corzo, ten miles from Tuxtla, where they had uncovered and reconstructed ruins of a preclassic site. The archeologists had heard of the ruins of the La Venta Canyon area, and in the first part of the narrative made an aerial reconnaissance of the entire area. They then reconnoitered part of the ruins area around Rancho El Refugio on horseback and on foot. Later they covered a very limited part of the area around Rancho Los Bordos on horseback and returned to the ranch house for water.

The ranch foreman next took them for a walk to see the ruins immediately adjacent to the ranch house. At this point, Mr. Peterson's story continues.

The first ruin that we saw that afternoon was about half a kilometer to the south-southwest of Los Bordos ranch house. (Site E). All sizes and shapes of building remains — long and low, long and high, narrow and high, squat, oblong, ovoid, square, round — covered the rolling, rocky terrain. Some remains consisted merely of outlines or foundations. Others were true mounds made of rock rubble. Some of the mound walls still stand about three feet high. A few were made with monolithic limestone slabs. The majority, however, were of slabs that could be lifted easily by one man. Almost every house had its individual terrace off to one side which had been outlined by large flat rocks.

There were several patios in this area. Three sides of each were walled around a small adulatory while the fourth side apparently remained open. Several of the larger mounds were large heaps of stone indicating the collapse of high walls or a corbelled vault. The majority of ruins were of house foundations with only a few courses of stone remaining.

The buildings generally were widely scattered, seemingly without specific orientation or regard to a central plan. Nothing in the nature of a ceremonial center was noted in our brief reconnaissance which covered only half of the site. Ridges were favorite places for erecting buildings, but hillsides were used also by terracing. Rarely were the flat places at the bottoms of the undulating valleys used for housebuilding. These low spots in which some soil still remains, probably were used for planting corn.

We saw many indications of water and

soil conservation. There were terraces covering every hillside for many kilometers around us. U-shaped check-dams followed the contours of the steep water runway. Many terraces were only a meter wide on the steeper hillsides, while on gentler slopes they were four to five meters wide. According to the ranch foreman, these ruins were several kilometers in circumference.

Small pottery fragments were abundant throughout the site. They were of little use for classification because of their fragmentary size. Several were of late Preclassic Period. Multiple-grooved jar necks, some of a later epoch, had a vitreous-appearing slip. A few sherds with a white slip on a creamy brown paste possibly were of Postclassic Horizon.

We returned to the ranch after sunset. Next morning we were up at 5:30 to look for the large pyramid we had seen from the air. Losing one of our mules

which we never found, caused a delay until midmorning. We had hoped to follow the La Venta Canyon rim west. We soon discovered, however, that an enormous and deep side canyon, called *Arroyo de los Catarineros*, entered the La Venta River at right angles and barred any traffic along the rim. We were forced to return to Rancho El Refugio.

There we changed guides, as our cowboy did not know the area we planned to enter. Our new guide, Ernesto Toledo, had been foreman of Los Bordos Ranch until a horse kicked him in the leg and crippled him. Despite his handicap he got around very well and knew the country.

We were told that our "Lost City" was probably a site called *La Soledad* because it had high standing walls of stone overlooking the La Venta River. We got under way at 2:30 p.m. and rode northeast from El Refugio ranch house, and followed a wide, shady cart road. We passed through a long, narrow valley between two high mountain ridges. A small, clear stream flowed through the valley and supplied irrigation water to corn fields all along the fertile valley bed. The stream gushed from two springs in the limestone rock only a few hundred meters from the ranch house.

About a kilometer from the house we saw some large earthen mounds about ten feet high with indications of dressed stone. (Site G). Time did not permit us to stop and examine them on that occasion. We continued along the left banks of the stream past the ruins of an old sugar refining plant, meadows, and corn fields for about an hour and a half. We also crossed a small waterfall of crystal clear water where we filled our five-gallon water drum, then crossed to the left bank.

Past this point the valley floor narrowed considerably and the cultivated lands came to an end. Fifteen minutes



Fig. 8. Mr. Gareth Lowe, then field director of the New World Archaeological Foundation, looks over the round limestone structures found in the archeological site on Rancho Los Bordos.

later we crossed to the right bank of the stream and rode down a narrow trail through dense tropical jungle. The trail led along the canyon floor and about ten meters above the stream which became sluggish and then stagnant and black. At the right and left of us the walls of the canyon gradually closed in to a width of only a few hundred yards, and rose to a height of from 100 to 200 meters.

We soon discovered that we were riding through another ruin site (Site H) which appeared to be exactly like those I had seen near Lake Miramar in the Lacandon jungle. The mounds covered every available flat place on the sloping sides of the valley. Everywhere were building terraces outlined by large stone blocks. I counted about thirty such mounds which were only a small part of the whole site. We saw several small courtyards or patios, but did not take time to investigate them. It is likely that there were caves in the cliffs back of the city, as the limestone formation there was similar to that in which I had found many caves.

At the end of this site, the stream too disappeared by sinking into the ground. The stream bed continued, however. Evidently the surface flow existed only in the rainy season.

About 5:30 that afternoon we reached the mouth of the canyon, almost overlooking the La Venta River chasm. We crossed the stream bed to the left and climbed up a short but steep pass. The steep grade left our horses gasping and forced us to dismount and walk a short distance. About 6 o'clock we reached the so called ruins of La Soledad. To our great disappointment they turned out to be ruins of modern times, probably not more than thirty years old. Gareth found fragments of a galvanized bucket and some zinc roofing material.

As we continued on about half a mile

from the lip of the canyon, we found ourselves again crossing an extensive archaeological site (Site J). Here, too, most of the ruins were only foundations or outlines. We discovered a ball court, however, with two long, narrow walls closed by short raised walls at the ends. This court was rectangular and did not have any of the usual H-shaped court characteristics. We were rarely out of building remains, and it seemed that al-

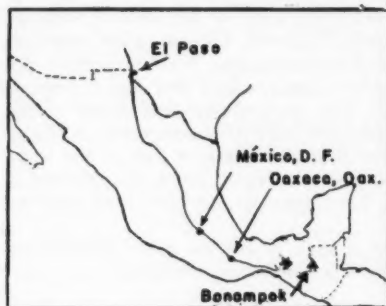


Fig. 9. The star indicates the approximate locale of this narrative. See large maps on pages 53 and 55 of the previous issue.

most every hillside and ridge was inhabited. Several round building foundations were seen here also. The ruins were not as impressive as the extent of territory they covered.

We rode until twilight when we pitched camp in a small depression, noting that a few trees covered a stone archaeological mound (Site K). Future travelers should note that there is no water in this area except near the end of June. At that season the numerous depressions begin to fill with water. By the end of December, the water holes are depleted again. There is no easy way to reach the La Venta River, one thousand feet below, for water. We had heard of a pass down to the river about fifteen kilometers downstream from Arroyo de Catarineros, but we did not

search for it.

Another morning we left about 7 o'clock and rode toward the tableland overlooking the La Venta Canyon. On the opposite side of the La Venta River was the imposing Cerro Colmena, a wide, rolling mountain range at least twenty miles long. The terrain through which we rode was extremely rocky. Vegetation was largely xerophytic brush except around the sinkholes where larger trees grew. Only in the depressions did sufficient earth remain to support grass for grazing.

As we made our way along the edge of the plateau, we passed through several small archeological sites scattered helter-skelter (Site L). Most of them were probably small villages. Some were larger and had central patios and central adatories. Most of the ruins were disappointingly eroded, but there were a few larger solid mounds. All construction was of limestone slabs with their remaining walls still a meter high. In several places we saw extensive engineering works such as check-dams and terraces which crosscrossed the slopes from the plateau to the edge of the canyon.

We reached our destination directly opposite the tallest peak of Cerro Colmena about half-past nine (Site M). The outstanding feature of this site is a large pyramid which can be seen from a considerable distance. Our guide said it was called "Cerro Campanario" (Church-bell Hill) because it appears as a large conical prominence. Figs. 8 and 9.

First we came to several large solid mounds scattered over a very large rectangular flat place. Then we rode through a large courtyard with mounds around the edges and a large adatory in the middle. We stopped at a sunken I-shaped ball court built on a small acropolis and oriented roughly WNW-ESE. Its large end courts originally were two meters high. The central court was 45 meters long, and the end courts 15 meters wide. The walls were vertical and made of well cut limestone slabs. It did not have any end mounds but there were mounds to the south. No rings were apparent nor did we note any place for their insertion. The condition of the ball court was such that it could be reconstructed easily.

Northwest of the ball court complex was the large pyramid built on a natural foothill spur of the canyon mountain range as its base. This natural hill was enlarged by adding two more levels of massive limestone slabs. Two holes made by treasure hunters atop the pyramid showed that the interior consisted entirely of rock slabs and stone rubble.

Fig. 10. The large pyramid, Cerro Campanario, is partly a natural hill but with several levels or stories made of large limestone blocks.



Fig. 11. The archeological site of El Ocote had walls nearly 8 feet high made of large rock blocks.



Only a few sherds were found in the two holes, but on the surface we found a figurine identical to those at Mirado. This, too, belonged to the late Preclassic Horizon. South of the pyramid was a huge conical depression about 50 meters in diameter. Probably it was once the city water supply, but now it is dry and full of silt. There was also a secondary depression near the ball court. There may be a pass down to the La Venta River from this site, but bringing water up would be a major undertaking.

Surrounding the central ceremonial area were many small scattered stone ruins, foundations, and engineering works. Lack of time and water, and the distance from our base camp prevented a detailed exploration of these ruins. What we saw indicated that this must have been a principal site, possibly a major ceremonial center. It may have been a nucleus to which came the early farmers from the hundreds of buildings we had seen during the two days of this reconnaissance.

We left the area reluctantly and travelled southwest and inland over extremely rough, broken limestone for about two hours. Sometimes the traveling was so rough that we were afraid the horses' hooves would split. We rode down from the tableland into a valley, then up over a ridge and down into another dry valley. Finally we went over a third ridge and came at last to Berrejonal. Berrejonal is a completely uninhabited wooded spot in a small limestone plain. Patches of woodland are scattered all over the plain. Each patch conceals a number of mounds.

I had visited this site in 1958 and had discovered a mound with a narrow tunnel in the side. It was roofed with flat slabs and led to a well preserved beehive-shaped, corbelled vault about three meters high. When I left, I covered up the entrance, intending to return with camera and flash equipment to document my find. However, upon our return we found some fallen trees on the mound but could not find the lintel of the tunnel. To remove the trees would have required axes which we did not have.

We contented ourselves with visiting the site and plunging through the thickly wooded patches of spiny brush and vines. There were approximately 75 ruined structures in the part that we covered. This site, Berrejonal, evidently was of major importance and is the only one in that area which shows strong Mayan influence.

The structures were all made of large stone slabs. When we removed a few of the loose upper slabs we found walls and lintels in perfect condition beneath. Many of them could be easily reconstructed.

There was a very large ball court, but in our haste neither of us took any data, thinking that the other had done so.

We found precisely cut stone slabs which led us to think there might be inscriptions. There was a great quantity of limestone present which could have been carved easily into stelae, but we found none. Apparently this was a well preserved Mayan site without corbelled vaults or inscriptions.

Berrejonal is located about 1½ hours' horseback ride from Colonia La Florida on the tableland above Rancho El Refugio. If one has a jeep and is disposed to risk a rough trip and a possible broken axle, he probably can get to within a half hour's walking distance of the site.

We were completely without water and our animals showed signs of thirst. We reluctantly left Berrejonal and rode back

to Rancho El Refugio. We reached the ranch and were able to drive back to Tuxtla the same evening without serious exhaustion.

Our survey of this area was hasty and superficial yet it revealed the existence of a great new archeological zone. We found the area along the left bank of the La Venta River almost completely blanketed with vestiges of man's handiwork, covering more than 30 kilometers in length and more than five kilometers in depth. This area probably supported many thousands of people at one time. Today it can support only three ranches. Habitation seems to date back to the middle Preclassic Period and to have reached its climax in the late Classic. We do not know what happened to those people or to the land, but we should like to go back and do some more exploring.

More About Toltec*

Dear Editor:

Some years ago there was evidence of pueblo-type structures in the vicinity of the Toltec Mine. These structures, however, did not exceed a single story in height. Chief Tecopa, self-styled friend of the 49'er, told of Indian working parties making seasonal migrations over the old Mojave Trade Trail to mine turquoise at Toltec. They came in peace and paid some sort of rental to the Mohave or Chemeheuvi for permission to pass and to mine.

In the early days there was a fork in the old Mojave trail near Soda Lake, near where the Silver Lake branch was later and also near where the little fortified outpost of Marl Spring stood. This fork in the trail days led to the pueblo mining operations. Field parties in recent years have done considerable research on Toltec but have not produced a rounded account. I believe that the turquoise mining near

Nipton where the Indian stone hammers also were found, may be linked as a part of the same operation. If so, we will have a whole new concept of the Indian commerce in pre-Spanish days.

The late Prof. George R. Momyer, during the years he taught at the University of Redlands, pursued this field of work as a hobby. His monograph on the subject was about ready to be published at the time of his retirement. It was delayed, however, while he worked on the giant ground glyphs along the Colorado between Blythe and Vidal.

L. Burr Belden

Historical Editor
The Sun Company

*Science of Man, Issue No. 1, December 1960, p. 10.

The Pharaoh Ikhnaton introduced the idea of one god who was a god of good, into Egypt over 1300 years before Christ.

CATALOGUING A COLLECTION

"What is the best way to catalog artifacts?"

The answer is that there is no best way.

Any way that requires the smallest number of identifying symbols on the object to deface it, yet which gives a system of recording that will identify and describe the item as completely as possible is a good system. In other words, use as few symbols as possible written on the artifact, yet a number sufficient to describe it as thoroughly as required.

There are many systems; some are good, some are bad. One collector used whole words (often misspelled) and even phrases which he inscribed on his artifacts. The writing on an artifact cannot be removed without damaging it. Therefore writing on it is obviously defacing the item. The collector in question actually kept his entire record right on the artifacts. We can think of no worse system except, perhaps, no system at all.

Another person labelled his artifacts a certain way for one year. By the next year he had forgotten what system he used and labelled new acquisitions differently. Thus is confusion compounded!

Library System is Basis For Artifact Accessioning

One of the best numbering systems is based on that used by librarians in accessioning books. Librarians have developed their system to a high degree of perfection. The system has been used in several localities by different organizations and it works well for artifacts, too.

Most readers are familiar with the method of cataloguing, called the Dewey Decimal System. Its function is to group related books together on the shelves. Books are assigned numbers in groups according to prearranged plan, so that similar books have the same or consecutive classification numbers.

This classification system, however, is not the system used by the librarians in accessioning books. An entirely different system is used for this purpose, which has nothing to do with cataloguing. Do not confuse the two. First, an *accession book* is used to record every book the library has, *in the order of acquisition*. Generally, it is a book, quite wide, with accession numbers along the left side, and columns across the page. The first column contains the acquisition or accession number from 1 on, indefinitely. Columns two, three, four, etc., contain the other identifying data — title, author, publisher, etc. On across the page will be more information: where obtained, how obtained, price, etc., and, perhaps, the catalog number.

In this system the main point is the

numbering of the acquisition. There can be only one book of any number. If the books are in sets, each volume has a separate number; duplicates likewise have different numbers. If by error a number is duplicated, one must be changed. No number is ever left blank to hold it for an expected book. The numbers do not represent authors, classification, areas, or any other such thing. They represent the order of acquisition only. If a book is lost, destroyed, or disposed of in any way, *its number is never used again*. If the library has branches, all books are accessioned together with one series of numbers so that in different branches there are never two books with the identical number.

Do not confuse the accession number with the catalog number; there is no relation.

Remember, the acquisition number of a book does several things: It shows the order of acquisition and it positively distinguishes the book from all others even if they belong to the same set.

A System for Artifacts

By combining the library system of catalog numbers with accession numbers, a system can be developed for cataloguing and identifying artifacts. In this system the artifact number is composed of two parts: (1) *the prefix* which brings together similar artifacts; and (2) the accession number which tells the order of acquisition. As the name indicates, the prefix precedes the accession number and is affixed to it by a hyphen.

Because writing on an artifact actually defaces it, we must make our system as short and simple as possible.

All well organized museums have definite rules about the amount of writing that may be placed on exhibits. You too, must establish a definite rule concerning how much may be written on pieces in your collection. It is best to limit the number of letters, numbers, punctuation marks, symbols, or any combination, to eight or ten. **NEVER ANY MORE THAN TEN.** Eight would be better if you can do it. To set up your system to use eight or ten symbols, first consider the accession number.

Accessioning

Have a good *bound book*, ruled off in columns if possible. In the left column, list the numbers serially beginning at one. After that you may mark the columns with any descriptive headings suitable to your own needs. Remember the rules:

(1) Use numbers consecutively, listing artifacts as acquired.

(2) Use one series of accession num-

bers for all items owned or controlled by the same collector. Thus no specific number ever appears on two different artifacts.

(3) No number should ever be skipped purposely. If you accidentally leave out a number, don't go back and use it. Just mark it "Not used," and go on.

(4) No number should ever be duplicated.

(5) If an article is lost, stolen, sold, destroyed, or otherwise disposed of, the number is never used again. (Remember, the accession number is the most positive identification you have. If it was assigned to an artifact and the object lost, there may still be pictures of it or reference notes in your reports, that pertain to that artifact and its number. Even though the specimen may be lost, the old references still exist. Using that number again on a new object later would cause confusion when someone looked at the new object and the old reference together. Your object in cataloguing is to avoid all confusion — forever.

(6) Never use letters after your accession number to identify two different objects that you have accidentally given the same accession number. For instance, you accidentally numbered a *mano* and an *olla* with the same number, 141, and later discovered it. Don't call one 141a and the other 141b. Instead, call one 141 and then *go to the end of the list to get a new number of the other*.

(7) Never hold a number blank thinking you will use it for an object you expect to obtain similar to one you now have. Remember, accession numbers indicate continuity of acquisition, not similarity.

While some of these instructions may seem repetitious they have been repeated purposely to impress them indelibly upon your mind. Remember all of them. Note particularly that no attempt is made to assign accession numbers together in a group to a group of objects that are related or come from the same area or belong to the same collection **UNLESS THOSE OBJECTS WERE ACQUIRED TOGETHER OR CATALOGUED TOGETHER AT THE SAME TIME.** For example, suppose that a group of objects was dug up at Yagul, in Tomb 53. They would all be catalogued consecutively, as they were acquired together and accessioned at the same time.

Later, suppose two more objects were dug up from the same tomb. You would not go back and try to fit them in the same group of numbers even though you had accidentally left a blank number. In-

stead, you would take the next two accession numbers from the end of your list and use them.

Prefixes

The next thing to consider is bringing similar artifacts together by the prefix system.

A prefix is a group of letters, numbers, or a combination, placed *in front of* the accession number and separated from it by a hyphen. The purpose of the prefix is to identify certain features connected with the item, thereby drawing all similar items together. To do this you must have a predetermined plan. Once this plan has been set into motion, it *must never be changed radically*, though it may be amended and modified to fit your growing collection.

Your prefix system must suit *your own* needs, as the needs of every museum and every individual collector are different. Here are a few examples.

Suppose you have set up your system so that everything from the site Mogu begins with a letter M. At that particular site, everything that comes from a tomb has the capital letter T*. The tombs are numbered, so this information is required, too. If the artifacts are from Tomb 96, its T will be followed by the Arabic digits 9 and 6. Now suppose that the 487th and 488th articles in your collection came from that tomb. The catalog number that would appear on those artifacts would be MT96-487 and MT96-488. MT96 is the prefix; 487 and 488 are the accession numbers. Together they make up the catalog number. No other items in your collection will ever bear the numbers 487 and 488, although they may bear the prefix MT96.

Count the number of symbols used. The prefix has four, the accession number has three, the hyphen is one, making a total of eight symbols. If you limited yourself to eight symbols you are within your limit. Eight small, neatly written symbols in an inconspicuous spot on an artifact will not hurt its value nor deface it. Yet together they positively distinguish this artifact from all others in your collection. Without referring to your books, the catalog number tells you immediately that they came from Tomb 96 at the Mogu site. What more can you ask of a catalog system? Anything more you wish to know may be looked up in your accession book or artifact card file.

Working Out a System of Prefixes

You may, if you wish, use prefixes to indicate whole collections or large groups of things. For instance, if you are an avid collector of many things, or if you are establishing a system to be used in a museum, you might use prefixes

*We are assuming, of course, that the excavations are being done by an authorized archeological group and have the authority to dig in a tomb. This is just an example, however, and the same sort of rules would apply to a surface collector.

prefix	accession	short description	
CENTRO DE ESTUDIOS REGIONALES, Labastida 7, Oaxaca, Oax. a facility of MEXICO CITY COLLEGE, Mexico 10, D. F.			
Measurements (cms.) width, diam. height depth .	Pigmentation () in clay () in slip () painted () smoked () entirely () rim only () inside () outside	Old field no. or former numbers: Condition () complete, whole, good () complete, whole, chipped, bad () complete but broken () repairable () shard(s) missing () handle missing Associated with	Place Photograph Here
Color apparent clay slip .	Finding where? by whom? date .	Miscellaneous () incised () engraved	Classification: Culture & Period According to
Made by () hand () turning () pouring ()	Exact location from reference points		

On Reverse: Sketch(es) of item, location, and associations; additional photographs.

A sample artifact card.

like these:

- A — Artifact collection
- E — Bird egg collection
- M — Mineral collection
- S — Shell collection

Or you might use this:

- A — Professor Jones collection (gift)
- B — Johnson collection (loan)
- C — Swingsburg collection (purchase)

These prefixes tell you little except the source, the donor, or lender.

A better way might be to use the letters to mean certain areas. If your collection is world-wide, your individual letters would have a different significance from one whose collection was very limited (local):

Broad area

- A — New England
- B — Middle Atlantic States
- C — Southern States
- D — Northern Mexico
- E — Southern Mexico

Local area

- Co — Colton site
- Mo — Mogu site
- Pi — Pinto site near _____
- Etc.

You may prefer to use the prefix or a part of it to indicate the type of artifact, container, axe, celt, point, etc., or you may use it to indicate composition or material from which the article is made, such as ceramic, jade, obsidian, wood, etc.

Probably the best system for establishing a series of prefixes is to let the position of a letter and the type of a letter (capital or small) have significance.

A series of letters in the first letter space to the left in a prefix may designate the over-all collection. The letter in second place may then indicate the area. The third letter could indicate a more localized spot. If you need more than 26 letters in either series, you can increase the number greatly by using a combina-

tion of a capital with a small letter, thus giving you 676 symbols (26x26) but still using only two actual symbols on the artifact.

To take full advantage of a two-letter system, letter symbols can be assigned in order regardless of their relationship to the subject. This system follows this order:

A	AA	BA	CA
B	AB	BB	CB
C	AC	BC	CC

If you use this system, you must keep a record because the symbols bear no relationship (such as initials, abbreviations, etc.) to the material to which they are assigned. This is best done on a back page in the accession book. The symbols are listed alphabetically in a column on the left and the subject to which they apply is registered to the right of the symbol.

Whatever you decide, remember it's yours. You must decide, and having done so, don't make any major changes. Any major change requires that you re-do much of your work. In addition always remember your material may have been published (even unbeknown to you. If you change your system after some artifact number has been published, think of the confusion that may follow. Leave your system flexible enough to make additions, but avoid all changes.

One last reminder — sit down and think things out carefully in advance. Just because you have only a little box of artifacts now, don't limit your prefixes to that little box. It is better to "think big" at the beginning than to find out your error after you have established your system.

God grant me the serenity to accept things I can not change, the courage to change things I can, and the wisdom to know the difference.

THE SAN BLAS INDIANS

A Study in Albinism

By Dee F. Green

Editor, U. A. S. Newsletter
Brigham Young University

Since the days of Balboa, fiction and fact have blurred the controversy over the "White Indians" of Panama. The problems connected with the San Blas or Cuna Indians are still legion despite some attempts to investigate them seriously.

As early as 1729, Lionel Wafer, an English adventurer, gave a fairly credible report of the "moon-children." [All the nouns in the quoted document were originally capitalized as was the custom in the days when it was written. The capitals have been replaced by lower case letters in the quotation for ease in reading. Ed.]

There is one complexion so singular among a sort of people of this country that I never saw nor heard of any like them in any part of the world. The account will seem strange; but any privateers who have gone over the Isthmus must have seen them, and can attest the main of what I am going to relate, though few have had the opportunity of so particular an information about these people as I have had.

They are white, and there are of them both sexes; yet there are but few of them in comparison of the copper-colour'd, possibly but 1 or 2 for 300. They differ from the other Indians chiefly in respect to colour, though not in that only. Their skins are not of such a white as those of fair people among Europeans, with some tincture of a blush or sanguine complexion; neither yet is their complexion like that of our paler people, but 'tis rather a milk-white, lighter than the colour of any Europeans, and much like that of a white horse.

For there is this further remarkable in them, that their bodies are beset all over, more or less, with a fine short milk-white down, which adds to the whiteness of their skins: for they are not so thick-set with this down, especially on the cheeks and forehead, but that the skin appears distinct from it. The men would probably have white bristles for beards, did not they prevent them by their custom of plucking the young beards up by the roots continually: but for the down all over their bodies, they never try to get rid of it. Their eye-brows are milk-white also, and so is the hair of their heads, and very fine withal, about the length of

6 to 8 inches, and inclining to curl.

They are not so big as the other Indians; and what is yet more strange, their eye-lids bend and open in an oblong figure, pointing downward at the corners, and forming an arch or figure of a crescent with the points downwards. From hence, and from their seeing so clear as they do in a moon-shiny night, we us'd to call them moon-ey'd. For they see not very well in the sun, poring in the clearest day; their eyes being but weak, and running with water if the sun shine towards them; so that in the daytime they care not to go abroad, unless it be a cloudy dark day. Besides, they are but weak people in comparison of the other, and not fit for hunting or other laborious exercise, nor do they delight in any such. But notwithstanding their being thus sluggish, and dull, and restive in the daytime, yet when moon-shiny night's come, they are all life and activity, running abroad, and into the woods, skipping about like wild-bucks; and running as fast by moonlight, even in the gloom and shade of the woods, as the other Indians by day, being as nimble as they, tho' not so strong and lusty. (Harris 1926:18.)

Not until the explorations of R. O. Marsh in the 1920's did the controversy really get a good head of steam. Until that time most scholars had rejected the tales of "White Indians" in the Darien jungles as fables to be classified with those of the "great white Amazon race" of Brazil. Marsh's return, however, with two of the "White Indians" and reports of the existence of many more, turned a focus of attention on the problem for a number of years.

Thereafter, most of the scholars agreed that they were albinos and the subject was left in the background until 1956 when Clyde Keeler published his *Land of the Moon-Children*. The subject has now been resurrected into another full-blown controversy for Keller holds the same opinion as most scholars, that this interesting population represents a high incidence of albinism. Still, he is at difference with some of the earlier conclusions.

Early theories that these people represent other than an albino population as

advanced by Marsh and others (Marsh, 1925) have all been ruled out by the majority of scholars. What remains is the albinism explanation which is probably correct but which is beset with problems the foremost of which seems to be lack of sufficient reliable data.

Partial albinism has been the term most widely applied to these Indians for they exhibit certain characteristics not found in the true albino. The hair is described by Harris as "... ranging in color from flaxen and straw to auburn and very light brown, and is frequently finer in texture than that of the brown Indians." (Harris 1926:48.) White body hair as previously mentioned by Wafer was also noted by Keeler on the appendages of all the "White Indians" he was able to examine closely. None of the other writers pay any close attention to this matter.

Eye color is described as varying from hazel through dark blue to dark violet. Nystagmus, a rapid involuntary oscillation of the eyeballs, is a characteristic of albinism and is reported among the "White Indians." Marsh (1934) said that this condition was only temporary and vanished in the case of the two "White Indians" that he brought to the United States, after they had been here awhile away from the tropical sun. Keeler (1956), on the other hand, reports that he conducted examinations in many intensities of light and found lateral nystagmus present in light as dim as .8 foot-candle. Harris and others do not mention this condition.

Skin color is also variable and there is some disagreement between Harris and Keeler as to the cause. Of further interest in connection with skin color is the occurrence of blotching or what is sometimes called "pinto." This is well known among animals and plants and is reported by Jones (1869) among the Negro relatives and parents of Negro albinos. Whether like conditions occur among the brown San Blas is not known and should be investigated.

In regard to general body form, both Harris and Keeler agree that the "White Indians" are in all proportions Indian and very like those with dark skin. This is demonstrated by both Hrdlicka (1926) and Harris (1926) in the tables which give the measurements they took of both the Indians brought to the United States

by Marsh and the Indians measured by Harris in Panama.

The real point of departure between Keeler and Harris is the former's assertion that there is a European strain which was introduced into the coastal tribes over a century ago (Keeler 1956:198). Harris (1926:34), however, says that there is no evidence of their origin being traceable to previous miscegenation with Caucasians. Harris, furthermore, is quite convinced of the accuracy of his family histories and other pertinent data. Formerly, neither whites nor Negroes were allowed in the San Blas villages overnight. This is attested by Marsh (1934) and others. However, Keeler still maintains that two Englishmen and a Frenchman who were shipwrecked "long ago" were adopted into the tribe and their children allowed to live.

Infanticide of white babies is reported by Harris, Marsh, and Keeler. McKim (1947) makes no mention of this practice but rather reports that they are held in some awe since, "Sibu is white. He is protected by God, who made him different." (McKim 1936:113.) Coastal and inland customs may vary somewhat, however, due to the fact that only a very few white men have penetrated the interior, while the coastal people have been bothered by Europeans for many years.

Genetical makeup has also been a point of some departure. Keeler (1956) maintains that more than one gene is responsible and accuses Harris of supporting a simple Mendelian recessive of the one-gene point of view. In view of his 1926 report, however, Harris merits no such accusation since he entertains the possibility of more than one gene being responsible for the albino condition. The avid supporter of the single gene mutation was Huxley. His report in 1924 describes the condition as follows.

In the first place, then, it appears clearly established that the "white" condition behaves as a simple Mendelian recessive. The normal dark colour is completely dominant; there are no intermediates; all the "whites" show essentially the same deviation from the normal; white x white gives only whites, but whites may be produced (together with normals) from the mating of two persons phenotypically normal.

The condition has been described as "partial albinism." If by this is meant simply any condition in which normal pigmentation is reduced, the term is applicable; but it should be noted that these people possess yellow hair and hazel eyes.

All the authorities who have examined them are agreed that the condition has no racial significance: the racial type has not been altered save in the one respect of pigmentation, nor can the condition possibly be in-

terpreted as resulting from previous crosses with Europeans². In any case, the discovery that the condition depends on a single-gene Mendelian difference from the normal implies both these results.

Now, however, for the biological and evolutionary significance. Not only are these "mutants" (as they clearly appear to be) perfectly capable of healthy existence and reproduction, but they are coming to form a community of their own. The normally-coloured members of the tribe have a feeling against marrying "whites" with the result that the mutants mate almost wholly with others like themselves, and thus in the course of time have formed a nearly closed, self-reproducing community of several hundred souls³.

Mutation: consequent preferential mating: consequent establishment of a definite intra-specific unit: with the future consequence that any further mutation occurring within this unit will remain confined to it, and the difference between mutated and type stock thus become accentuated. Here, in man himself, is a case showing with almost diagrammatic clarity how evolutionary change may originate in single mutations of considerable magnitude. (Huxley 1924:464)

Huxley was misinformed and thus the problem is further complicated by the fact that the "White Indian" males are not permitted to marry among their own people and the women only rarely³. The gene or genes responsible for the albinism seem to be widespread through the population and since there is rather intensive inbreeding they crop up regularly. The foregoing circumstances constitute a fine prepared laboratory for physical anthropologists and geneticists. We should take full advantage of the opportunity of studying these problems further before western culture destroys the possibilities.

Problems connected with the origin, for the tribe as a whole, are tantalizing points for consideration. Hrdlicka (1926) states that they are of the same type as the Maya and indeed their traditions apparently relate them north. Albinos are also reported among the Maya, Aztec, and Navajo. Hrdlicka (1908) studied albinism among the Zuñi and Hopi. Still another aspect is the presence of curious murals at Bonampak which seem to represent both a white and brown population.

A good beginning at ethnological considerations has been made by Wassen (1949) but there has not yet been sufficient study in this area either. Were it to be discovered that Maya area traits found among the San Blas were older than those of the circum-Caribbean area, it might add some weight to a northern origin.

Holmer maintains that the Cuna or San

Blas language, "... contains an important strain of Chibcha words, a peculiarity which it shares with Kagabe, Bribri, Rama, and other neighboring languages." (Holmer 1947:217.) On the other hand, Holmer comes to no conclusion about grammatical relationships except that Cuna and Chibcha are not related. Comparisons with languages to the north in Mesoamerica might reveal some interesting connections especially in light of the above listed factors which tend to point northward. The seemingly advanced Cuna pictograph writing also has tantalizing possibilities. (See Harris 1925 and Holmer 1951.)

In the summer of 1959, Dr. Edward Cleve of the Tulane University Medical School spent some time among the coastal San Blas and reports (personal conversation) that of the 25 adult blood samples he was able to complete, all were of the ABO group and the hemoglobin was all adult. One of the blood samples was from an albino. He reports no vitamin or mineral deficiencies among the coastal groups, but malnutrition exists in the interior. Dr. Cleve stated that as far as he could tell the albinos were both physically and mentally as able and alert as their brown countrymen except for the fact that the intense tropical sunlight bothers their eyes and skin.

According to the best estimate that Dr. Cleve was able to obtain, the present albino population is about one per cent of the whole. He reports that all the coastal groups are friendly and that conditions for study are generally good. Though the Negroes have not made any appreciable inroad at interbreeding with the San Blas, Caucasian influence is beginning to be felt through the Panamanians. If geneticists and physical anthropologists are to take advantage of this "natural laboratory" it must be done immediately before Caucasian interbreeding destroys the possibilities of studying a relatively pure breed with its high mutant the combination of which holds some of the secrets of evolution and race.

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- 1 Huxley saw only the two albinos brought to the States by Marsh. Harris' report was not available until two years after Huxley wrote the above.
- 2 Here Keeler and others disagree, but again Huxley's opinion was probably formed on Marsh's reports and Indians.
- 3 Opinion probably based on a false report circulated by Marsh. It was later proven by McKim (1947) that no large white populations existed in the Darien interior.
- 4 SCIENCE OF MAN, Vol. 1, issue 1, Feb. 1951, p. 45.

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Fig. 34. The cliff face of the **Cerro del Caballito Blanco**, showing the pictograph in question. Arrows at the top indicate two cacti each of which is six feet tall, the approximate height of a man. Comparison of these cacti with the cliff face and the pictograph will give a little indication of their enormity.

When is a Horse not a Horse?

In the Valley of Oaxaca, 380 miles southeast of Mexico, D.F., and halfway between the cities of Oaxaca and Mitla, stands the hill which is known locally as the **Cerro del Caballito Blanco**. The hill is a half-mile from the federal archeological zone, Yagul, currently being excavated by Mexico City College. It has its own ruins, too, but the most impressive thing about the hill is not its ruins, but the large pictograph on one of its overhanging cliffs that gives it its name. Or does it? That's the question.

Since the college has been excavating in that area eight or nine seasons, it has been the general understanding that *caballito* as used locally meant, not a little horse (its usual meaning), but a water strider, the little insect so common throughout the United States and elsewhere, that seems to skim over the surface of the water. Many indigenous workers at Yagul have made that assertion to the students and faculty. The question now

is, "Is this really true?" or "Were they just being agreeable to their American friends?"

In a letter to the editor dated 14 December, 1960, anthropology student Dick Owens says:

... When we asked Don Nicholas [the foreman at Yagul] what the name of the figure was (the figure you refer to as *caballito blanco*), he answered, "La Corona." We then followed with a question about the *caballito blanco*, and he showed us a figure in a shallow cave above and to the left of 'La Corona' that does appear to be a horse. Evidently when the initial investigation of this area was made, 'La Corona' received the same name as "Caballito Blanco" and no one has bothered to question into the subject.

Regarding the big pictograph, the *Mexico City Collegian* of Thursday, November 12, 1959, has this to say:

The Caballito Blanco is painted on a cliff at the side of a long low mesa, in soft rock of which time has eroded many caves, and in these caves several herds of goats are kept.

Strictly speaking, it's not a real *caballito* either, but an old drawing on a rock. How old? We don't know. What for? We can't answer that either.

Local people say the picture is of an insect—a water strider, one of the familiar long-legged walkers on waters of ponds all over North America. For reasons which are far from clear, the people of Tlacolula, Oaxaca, where the drawings decorate the cliff, translate the local Zapotec name of the insect as *caballito* (little horse) in Spanish.

In his letter, Dick also tells of a new cave in the Cerro del Caballito Blanco, heretofore unknown to us:

... Don Nicholas ... led us to a cave, a very, very low one, that is located directly beneath the large petroglyph [pictograph—it's painted. Ed.] on the side of the cliff of Caballito Blanco. The cave's floor is carved with a large number of glyphs that, from those we have been able to copy, have been dated from Period I to Period III. These datings were made by Caso, Leigh, and Bernal, with each postulating a different date. There is also a head carved from stone that faces in toward the cave. The head is possibly an early representation of the deity Cocijó.

A more detailed description of this cave may be found in *Katunob* for November 1960, page 24.

Students of Mexico City College have worked on the archeological ruins on the **Cerro del Caballito Blanco** for two seasons under Prof. John Paddock of the Department of Anthropology, assisted by

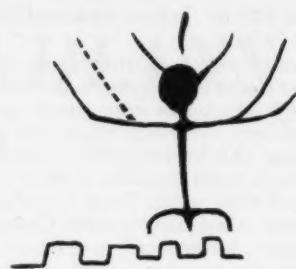


Fig. 35. Detail of the Caballito Blanco (or La Corona?). Photo and sketch, Figs. 34 and 35, by Gene Vincent.)

Maj. Joseph E. Vincent, then director of the *Centro de Estudios Regionales* in Oaxaca, and Charles Wicke of the Department. As in the case of so many other Mexican ruins, much remains there to be done in uncovering the mysteries of the ancients—their archeological ruins, their petroglyphic writings, and the cave dwellings. What do they all really mean?

For years after Darwin propounded his famous theory of evolution, verbal battles raged over the supposed fact that "man descended from monkeys." Nowhere in his theory did Darwin ever postulate that men came from monkeys.

Navaho or Navajo, Mohave or Mojave

Ever since the Mexican government turned over control of our western states to the United States there has been confusion about the correct spelling of the words *Navajo* and *Mojave*. Should they be spelled with a "j" or an "h"? In the case of the word "Mojave," the spelling depends on the use. In the case of Navajo, a "j" is always used.

The Board of Geographic Names, Washington 25, D.C., has simplified the problem for us by making definite rulings on spelling:

(1) In California, the name of the river, the city, and the desert is always *Mojave*, spelled with a "j," the Spanish way.

(2) The mountains, the wash, and valley, and the tribe, also in California, however, are spelled with an "h," the English way.

(3) In Arizona, the name of the county, the Indian tribe, and the name in all other usages are spelled with an "h."

You will note that those rules were made by an agency of the federal government and therefore have the effect of law. There can be no variation or differing opinion.

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The Desert Earth Mound Mystery

by Frank H. Briggs and Charles Bishop

Prospectors and other travelers in the Mojave and Colorado deserts and northern Baja California, Mexico, occasionally have encountered small earth mounds, some round and some square. Most of them are circular and seldom over two feet high unless topped with rocks.

A conspicuous group of circular mounds topped with rocks occurs in the Chuckawalla Mountains. An enterprising but non-archeologically minded prospector dry-washed a few of these, thinking that placer gold might be hidden beneath the mounds.

Another group of mounds is located in the San Pedro Martir Mountains in Baja California, Mexico, at an elevation of 7000 feet. This group is in a square about 60 feet on each side. The mounds

are uniformly spaced and topped with rocks which add another six to ten inches to their height.

The most numerous and spectacular mounds are located in the Amargosa Desert in the Death Valley region. Some of these mounds are circular and some are long ridges. A few of the circular mounds are topped with rocks.

Those that are ridgelike are arranged five ridges to a group. Those on the east side run east and west and are 50 feet long. Those on the north are 42 feet long. The west group runs north and south and is 45 feet long. The southern group runs east and west for 45 feet.

From the northwestern corner of the long ridges runs a long mound extending 150 feet west. Some of these mounds were crowned with stones while others were not. The distance between these mounds varies from six to 18 feet. These mounds were slightly larger in diameter and also higher than others. The dirt for the mounds was not brought in from a distance, but had been raked together on the spot forming a ditchlike depression or moat around the mound.

Much of the area is covered with small conglomerate pieces of rock lying as flat as a mosaic floor, probably undisturbed for thousands of years, since patina (commonly called desert varnish) is found on

them. The group is probably the most elaborate collection of mounds in the Amargosa Desert. All the others consist of straight rows of little hillocks. A few are crowned with rocks but most are without.

What do these mounds signify? What were they for? The pre-Columbian people of North America were great lovers of games. They were also very religious. Did they have a religious significance or were they used for playing tribal games? No artifacts or shells are ever found around the sites.

Why are the mounds found among the Shoshone groups: the Mojave and the Diggers of Baja California? Perhaps one day an anthropologist with enough interest will be able to find the meaning of these mysterious mounds from one of the *ancianos* among the Pintos of Death Valley, the Chemehuevi near Needles, or the Caliwai of Arroyo Leon of Baja California, but until that happens, they will remain a mystery.



Navaho, etc.

CONTINUED FROM PAGE 98

Dr. A. L. Kroeber, noted anthropologist of the University of California, feels that this ruling is not sound and wants the "h" spelling to be used in all cases. His contention is that the words are Indian, and the Indians had no written language. The "j" is Spanish, not Indian. Therefore according to his logic, the words should be spelled with an "h." Other people continuing the same logic would heartily disagree.

The Mexican government whose official language is Spanish owned the West first and spelled the words *Mojave* and *Navajo* with a "j." Should we or should we not have changed them to an English spelling when the lands became American? Most people would say, "No." We didn't change the spelling of San José to *San Hosay*, nor did we change the spelling of the Gila River to *Hela*, did we? Is there any reason why we should not be consistent and let the other Spanish names remain as they were? This magazine will use the spelling as prescribed by the rules of the federal government given above.

(4) Our last rule concerns the spelling of *Navajo* which is much easier. According to the Geographic Board, it is *always* spelled with a "j."

The following is a tabulation of the different spellings to make them simpler to remember:

Rule Name	State	Remarks
1 Mojave (town)	Calif.	d
Mojave River	Calif.	d
Mojave Desert	Calif.	d
2 Mohave Mountains	Ariz., Calif.	d
Mohave Wash	Calif.	p
Mohave Valley	Ariz., Calif.	p
3 Mohave City	Ariz.	d
Mohave County	Ariz.	d
Fort Mohave (site)	Ariz.	d
Mohave Point	Ariz.	d
Mohave Creek	Ariz.	p
Mohave Spring	Ariz.	p
4 Navajo Falls	Ariz.	d
Navajo (village)	Ariz.	d
Navajo County	Ariz.	d
Navajo (Ind. Res.)	{ Ariz., N.Mex.	d
Navajo Indian Tribe	{ Colo., Utah	d
Navajo Creek	Ariz.	d
Navajo Spring	Ariz.	d
Navajo Mountain	Ariz., Utah	p
Navajo Country	Ariz., Utah, N.M.	p

Under the heading of "Remarks," you will note some read, "p" (pending). To explain this, J.O. Kilmartin, Executive Secretary of the Domestic Geographic Names Section, Board of Geographic Names, in a letter dated September 8, 1960, says that the names so indicated "are names on which we have had occasion to work so they are represented in our files but they have not been made actual decisions." Decisions are indicated by "d" in above chart.

Mahicans, Mohegans, and Mohicans

No doubt most of the readers have read the old familiar story, *Last of the Mohicans*, by James Fenimore Cooper. But has anyone stopped to wonder who the Mohicans were and in what part of the country they lived?

Actually there was no such tribe as Cooper describes. Instead it was a composite of several. According to the World Book Encyclopedia, Cooper's Mohicans were

... a confederacy of eastern Indians. Their big, stockaded villages were once scattered through Connecticut and southern New York. James Fenimore Cooper's novel, the *Last of the Mohicans*, describes their customs, although not always accurately. ... Their Chief, Uncas, was friendly to the colonists, but the other tribes hated him and accused him of double dealing. His tribe has almost disappeared.

The expression "not always accurately" is certainly a very good description of the book. In addition it also describes the encyclopedia article itself. In the first phrase quoted above, the Mohicans are described as a confederacy of tribes. Later on in the article they are described as a tribe.

According to Dr. Walter W. Taylor, well known authority on the American Indian, there was no such group as the Mohicans. Apparently Cooper was trying to describe the Mohegans, one of the members of the Pequot Confederacy.

This confederation lived east of the Connecticut River and in Rhode Island. There was also a confederation that lived on the west edge of Connecticut and the east part of New York which was called the Mahicans. Cooper either confused the two groups or used the novelist's prerogative of making up a new group.

Both the Mahicans (a confederacy) and the Mohegans (one tribe of the Pequot Confederacy) were members of the great family of Eastern Woodlands Indians. All the Eastern Woodlands Indians with the exception of the Conestoga, the Susquehanna, the Winnebago, and the Iroquois groups spoke the Algonquin language which extended from Vancouver Island, British Columbia, to Newfoundland and Nova Scotia, and from northern Arkansas almost to the Arctic Circle.

Reading Cooper's book is an excellent way to absorb Indian culture, but don't try to tie the culture traits down to a specific tribe. Instead, think of it as a composite of several groups in an area.

Science Study Kits

Three kits have recently been prepared by the San Bernardino County Museum as aids to elementary school teachers in visually presenting science to their pupils. "Visitors from Hopiland," the kit for the third grade, contains a film strip, "Indians of Long Ago," shell beads, arrow-points, acorns and a piece of pottery, and two booklets, "Kaneeno and the Great Deer of the Mountains" by Gerald A. Smith, and "Ancient Life Among the Southern California Indians" by M. R. Harrington.

Kits entitled "Indians of Long Ago" for the fourth grade and "The Happiest People on Earth" for the fifth grade contain similar material but for higher age brackets. Prices vary from \$15 to \$25 and proceeds go to the construction of new wings on the museum. Teachers interested should contact the Director, San Bernardino County Museum, P.O. Box 358, Bloomington, California.

Although arch eologists, historians, astronomers, and theologians have been studying the subject for hundreds of years, the true dates of the birth and death of Jesus of Nazareth are still not known.

Alumni of Mexico City College In Puerto Rico

Mexico City College's Alumni Club of Puerto Rico met December 14, 1960, at the Faculty Club of the University of Puerto Rico. Mr. Gary Frink, president of the group, presided. Future activities of the club were discussed and plans made for the future. Alumni visiting Puerto Rico or other interested persons are asked to contact alumnus Héctor Moya Montero at the *Instituto de Cultura Puertorriqueña*, Aptdo. 4184, San Juan de Puerto Rico.

Our Cover

Our cover this month shows an old Yuma Indian, believed to have been called "Blue Sky," that lived in the Colorado River area of eastern San Diego County, California. He lived among the Diegueños, a Yuman speaking tribe, and until his death wore his hair long in the ancient fashion.

The picture was taken by the late Edward Davis of the same area whose photographs of the Indians are well known in this area.

Katunob

In the February issue of *SCIENCE OF MAN* (p. 61) we erroneously announced the price of Katunob as \$1.00 a year, not knowing at that time that it had been necessary for Prof. Fay to raise the price to \$2.00. Even at twice that price, this publication would be worth it.

The official appointment of Dr. Gerald A. Smith as the director of the San Bernardino County Museum at Bloomington, California, has recently been announced by the County Board of Supervisors. The official recognition of this fine institution as a facility of the county will be a boon to the museum and in addition will recognize the fine and faithful service of Dr. Smith.

Archeological Tour of Mexico and Polynesia

The Garden Grove Travel Service, 10972 Garden Grove Blvd., Garden Grove, California, has just announced its selection of Major Joseph E. Vincent again as its tour leader. Major Vincent is the former director of the *Centro de Estudios Regionales*, a branch campus and research center of Mexico City College in the Oaxaca area. He is the present editor of *SCIENCE OF MAN* and an instructor in anthropology at the San Bernardino Valley College. The tour will leave Tijuana on the sixteenth of July, and will return there the twenty-eighth. Those participants from the east coast and midwest may arrange to meet the group elsewhere if desired.

In central Mexico the group will visit the spectacular ruins of Tula, Teotihuacán, Tenochtitlán, Tenayuca, Copilco and Cuicuilco. In southeastern Mexico they will visit Monte Albán, Teotitlán del Valle, Yagul, and Mitla. A whole day will be spent at the colorful celebration of the *Lunes del Cerro*, in Oaxaca. This dance pageant has been presented annually since the days of the Aztec occupation of the area. No serious student of the native American cultures should miss this celebration.

A similar tour is also contemplated for the Polynesian area later in the summer. Those interested in this Pacific culture should contact the Travel Service as soon as possible indicating their desires as to area and date. For either trip a certificate will be given for use by students in obtaining scholastic credit.

Corrections; Issue No. 2

Paleo-Indian "Tombs," page 62, should be corrected to read Adena "Tombs."

The word, "valid," in brackets after the word *meitai* near bottom of column 1, page 48, should be deleted and the following footnote substituted: *Meitai* according to Margaret Mead, indicates the "holder of a title," or "the head of a household." See Margaret Mead, *Coming of Age in Samoa*, Penguin Edition, page 237 and the other references listed therein. *Meitai* means "good" or "valid" in Tahitian but not in Samoan.

SCIENCE OF MAN

The Indian as a Prospector

The fact that at least 131 mine or quarry localities were known to the California Indians is sufficient proof of the efficiency of their prospecting. Few of the products quarried by the Indians are of much present day economic importance. Indeed, the majority of the tribes showed a surprising disregard and disinterest in metals which were obtainable in the native state. The history of California might have been very different if the Indians had employed native gold and tapped the richer placer deposits of the Sierra Nevada. The gold rush would have occurred several hundred years earlier and under the flag of Spain.

The primitive California Indians were continually foraging over the countryside in search of food, firewood, and raw materials with which to form their tools and implements. Each tribe, as a rule, occupied a restricted territory whose boundaries were rarely trespassed by neighbors. To do so without permission was a certain cause for war.

These limitations of exploitable area had a number of interesting effects. Primarily this restriction led to the development of a system of conservation of natural resources. Each local Indian group knew every rock outcrop within its territory. If any stone was of a variety which lent itself to the making of implements, they used it.

Actual prospecting, where the Indian would set out blindly on a search to locate a specific stone material, probably was unknown. Their prospecting was limited to accidental discovery of a surface exposure while hunting, gathering food, or moving across country to another village. Mines and quarries belonged to the group and not to an individual. (From *California Journal of Geology and Mines*, July 1944)

Aztec Atlatl

A weapon that preceded by centuries the bow and arrow in the New World still is in use. A report on a coot-hunting trip on Lake Patzcuaro in western Mexico in which the only weapon used was the spear thrower, the Aztec *atlatl*, by Dr. Matthew W. Stirling, retired director of the Smithsonian Institution's Bureau of American Ethnology, has been published by the Bureau.

Use of the *atlatl*, the Aztec name, long before the first Europeans reached the New World, presumably was general over most of the two American continents. Relatively speaking, the bow was a late invention. By the time of the first white

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settlers, however, its use was confined largely to the highly cultured Maya of Central America and the Incas of Peru. Presumably this was due in large part to the fact that hunting, for which the bow was more effective, played a relatively small part in the economy of these highly cultured and essentially horticultural people. For this purpose there was no incentive to change weapons.

For purposes of war the *atlatl* was about as effective as—possibly even more effective than—the bow, especially in close combat. Very elaborate carved spear throwers embellished with gold and semi-precious stones, were used by military leaders in both Mexico and Peru. Not long after the Conquest, according to Dr. Stirling, the *atlatl* went out of use as a weapon of war. It has persisted until recent years, however, as a hunting implement among the descendants of the Aztecs in the Valley of Mexico and among the Tarascan Indians in the neighborhood of Lake Patzcuaro. It is also used for hunting sea birds and mammals by the Nuni-vak Eskimo of western Alaska.

The Tarascans use it for the same purpose. As a flock rises from the water a multitude of multipronged spears is launched in its midst, and they seldom fail to bring down several birds. The weapon is a sort of primeval "shotgun." Each year in October a large communal hunt is conducted on the lake—possibly a survival of an ancient custom. As many as 1,000 canoes, each with four or five hunters, are used. Thousands of ducks are killed. At other times of the year hunting is mostly an individual affair, but the *atlatl* still is used in preference to bow or gun. It was on one of these hunts that Dr. Stirling went as an observer.

(Smithsonian Institution, August 24, 1960.)

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The Wrath of the Gods of Rapa Nui

By Emily Ross Mulloy

Mrs. Emily Ross Mulloy, her husband, Dr. William T. Mulloy, and their three children have been on Easter Island (Rapa Nui in Polynesian) since January 1960. Dr. Mulloy is currently on leave from his position as Professor of Anthropology at the University of Wyoming. In February 1961, the family was scheduled to return to Santiago, Chile, where the professor will complete a teaching assignment at a local university before returning this summer to his post in the States. Prof. Mulloy has been on Easter Island once before, when in 1955-56, he accompanied anthropologist Thor Heyerdahl while getting material for his book, *Aku Aku*. His current trip to Rapa Nui was to carry out more research work for the Chilean government under a Fulbright grant.

Mrs. Mulloy's letter of June 15, 1960, to her father, Francis E. Ross of Detroit, was extracted and the portions of anthropological interest are given below.

The most exciting event of the past month was the tidal wave on May 22, following the earthquake which took place in Chile. I imagine you have read more about the earthquake and tidal wave than we have, though, as our news sources are very limited.

On the Sunday night of the earthquake we were getting ready to have supper when some children called us to come

out and look at the beach. Just off the shore there is a group of rocks that normally stand four or five meters above the high water line. When we arrived at the beach, however, these rocks had completely disappeared. Our stone pier was covered with water. There is a large statue standing at the end of our street where it meets the beach. By the time all of our family had been collected together and arrived at the beach, the water had receded. Many children and adults, too, were poking around in the little pools that remained on the beach, looking for fish that had been left stranded there.

About fifteen minutes later it rose again and everyone ran for high ground. Although none of the other waves were as high as the first one, it continued ebbing and flooding all evening from seven until midnight. Each time the big wave went out, the water dropped much below the usual low tide level. This caused all the area between the normal shore and the offshore rocks mentioned above to be drained of water—something that seldom happens.

By eight or nine o'clock the entire population of the pueblo was down there by the water front. Of course, we were there too. People brought torches made of rags dipped in gasoline or kerosene, primus lamps, carbide lamps, flashlights, and everything else that would make a light.

With the lights they scrambled around on the exposed rocks catching stranded fish, lobsters, crabs, octopi, etc., when the water had ebbed out.

Many people, including Martín's father, stayed all night. There seemed to be a superstitious belief that people must stay at the shoreline to prevent the sea's rising again. Tidal waves had happened before. In fact we were told that several years ago the water had come up and covered the football field, going almost to the cemetery just a few feet lower than our house. Although we didn't know it at the time, this one was more disastrous. No one was drowned, though, and no one's home washed away. On the other side of the island, however, a great deal of damage was done. Perhaps that was because that side of the island was next to the continent and took the first great shock of the wave.

The next morning we discovered that the sea had "sucked up" a great deal of sand from the deeper parts of the ocean and had deposited it on our beach and among the rocks along the shore. An enormous supply of fish had also been deposited on the shore for us. The supply of sand was a boon for the builders, both the government and the private ones. Ordinarily the government would have had to haul its sand by jeep and trailer from the other side of the island for its cement making. The individual builders would have had to haul theirs by oxcart.

For most of the following week, every able-bodied man, woman, and child was down on the beach shoveling sand, piling it up to dry, and then loading it on oxcarts, trailers, or anything else handy to be hauled to the various places where it was needed. Martín was building a new house and got all the sand he needed for his cement work. He collected sand for the Air Force first and then when his duty hours were over he collected it for his own house.

Thursday of that week was a religious holiday. As it was a beautiful day, we spent most of it at the beach. Among the visitors we had were Guillermo's parents. From Guillermo's father we heard the details of what happened on the other side of the island.²

In the bay of Hotu Iti, on the opposite coast from us, and between the volcanos Rano Raraku and Poike, the sea had risen 13 meters above its normal level and covered a very large area. It went inland as far as 700 meters (almost half a mile).

Several hundred lobsters and thousands of fish were washed up along that shore. The *ovejeros* [sheepherders] didn't get over to this part of the island until Tuesday or Wednesday, so all those lobsters and fishes were completely washed.

The tidal wave completely destroyed the largest and once best preserved *ahus* on the island, Tongariki. [An *ahu* is

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platform or base on which the large stone figures were placed. Do not confuse with *aku-aku*, a family guardian spirit.) While this ahu did not have the beautiful Incaic stonework of Vinapu, it did have seventeen *moais*.³ [A *moai* is a carved figure of stone or wood. It had been in good condition previous to the tidal wave although it had been tipped over. Its high masonry platform had at least seven courses of stones.]

The following Monday, Kathy and I went over to Hotu Iti with Gonzalo in an Air Force jeep with a group of airmen. Among them were Martin, Arsenio, and Juan and Jorge Edmonds. All wanted a chance to see the destruction for themselves. Prior to this time I had only seen pictures of Tongariki and hadn't actually been there. Now I could only see it in its damaged condition. I did get an opportunity to see Rano Raruku, the famous statue quarry where so many of the Easter Island photographs are taken.

The *ahu* no longer had stones piled on top of each other showing that it had been used as a wall. The huge *moais*, some 18 or 20 feet tall, had been lifted, rolled over, washed inland, and left lying as far as 100 meters from their original positions. The whole area is now covered with rocks—boulders from the sea, stones from the ahu, and stones from the various modern stone walls in the area. All this was mixed with bones and skulls from the tombs. These had originally been under the *moais* after they had been overturned during the period of intertribal warfare. Now they were all mixed with bones of dead sheep, dead lobsters, dried fish, eels, sea cucumbers, octopi, and seaweed. It was an indescribable mess.

Although we had arrived after the water had receded, it was still easy to see the water line. The sea water had killed the grass and other plants and they had now turned yellow all over the area. There were a couple of caves along the shore. One had been completely filled with rocks. If Martin hadn't told us, we wouldn't have known it was a cave. The other one, a little higher, was filled with seaweed and dead fish.

The reason we had made the trip to the other side of the island was to take back some of the skulls and other bones that had been washed out of the tombs. We also wanted to bring various smaller carved stones which turned up, presumably things of a more archaic type that had been built into the walls of the big ahu. Since they were small enough to be carried we thought it best to take them back to the government headquarters building where they would be kept until the museum was built. They would be too tempting, and unscrupulous people might haul them off and sell them to tourists. When I say small, I don't mean you could put them into your pocket. The largest was, I suppose, four feet



tall, and the smallest, a head about 18 inches in diameter. It was an all-day job packing and loading them, and required two jeep trips with the jeep and trailer to haul them all.

We stayed over there while the jeep went back with one load and took some pictures. As it was a very overcast day, I didn't try to go up the side of the vol-

cano to photograph it. Sooner or later we will have to have our pictures taken alongside a *moai* or no one will believe we have been here. The weather was not at its best for picture taking. Unfortunately exciting events like a tidal wave that would make a good movie usually occur, it seems during dark or rainy period. (CONTINUED)



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Although it has been difficult at times traveling as we do, I am certainly glad to have had the opportunity to visit an out-of-the-way place like this and to have been privileged to see the wrath of the Gods of Rapa Nui.

REFERENCES

1. Thor Heyerdahl, *Aku-Aku: The Secret of Easter Island* p. 27.
2. *Ibid.*, map inside front cover.
3. *Ibid.*, p. 105 and plate opposite p. 193.

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Unusual Words in A Polynesian Dialect

The following document was received some months ago from B. R. Benson, a seaman and traveler in the South Pacific. His mailing address at that time was General Delivery, San Francisco.

The paper was written November 8, 1948, at Papeete by James Norman Hall, the well known writer of South Sea stories. After his death the document came into the possession of the present owner. Benson, himself a lover of the South Seas and an admirer of Hall's writings, has taken a great interest in the document and is attempting to find an anthropologist or linguist who may know something about the subject of Hall's writing. He has sent it to us and to other magazines and professional societies for publication and possible identification.

The article is typed and is on a rather rough white paper, now quite wrinkled,

apparently from continued exposure to salt water or salt air. One can almost hear Hall talking, as he reads it. Benson suggests that Hall may have intended to publish it in one of his short stories. It is apparently a first draft, however, as it contains several errors in punctuation. While we would like to have kept the paper a while longer for photography and study, we were asked to return it as soon as possible so that it could be sent to other publishers and scholars for possible identification.

Can any of our readers identify the words given in the document? It is quoted verbatim, as written, including the errors in punctuation.

UNUSUAL WORDS IN LOW ARCHIPELAGO SPEECH

I have never been much of a linguist, as far as the many dialects of Polynesia go, nor have I ever considered myself a real student of the Polynesian cultures. In my travels however — ever since my World War days — I have always made it a practice to jot down words of the various dialects as I went from island to island, and from island group to island group. Why I have never been quite sure. Perhaps it was the differences in the dialects that struck my fancy, or perhaps it was the similarities. Perhaps at first I may have fancied that someday I should become a linguist. If that was my reason, I have long ago forgotten it.

In traveling around as I have, more than twenty years, through the islands, with or without recorded lists, one can not help picking up some of the language. A few weeks ago in one of my rare housecleaning moods, I came upon some of my early word lists, and as anyone would do, I sat down to look them over before discarding them. Most were just ordinary — containing words that I had since heard in one form or another all over the Polynesian area. But near the bottom of the stack was one list that seemed not to belong. True, there were words in the list that I recognized, but what impressed me were about two dozen words that I had never heard since in any of the South Sea islands, either the so-called Polynesian, Melanesian, or Micronesian. But then, as I mentioned before, I do not pretend to be a linguist.

Although I confessed this to myself several times, the list still stayed in my mind. The rest I destroyed, this one I saved — at least for a day or so till I could look it over when my housecleaning was done. Two weeks later I ran into it again, and having nothing better to do at the time, compared the list with a few old grammars I had lying around.

The list was dated September 3, 1922, and bore the notation Hopemea, almost obliterated with time. I do not remember the island, but as it was with the lists of my early 1922-23 voyages reminiscent of Crichton, it must have been in the Low Archipelago. [Crichton was one of the men Hall met on his early trips. See Nordhoff and Hall, *Faery Lands of the South Seas*, Chap. 1, and Hall, *The Forgotten One and Other True Tales*, Chap. 1. Ed.] Somehow the list intrigued me. It was now faded. I was not in linguist I kept telling myself. Who cares? Why not copy the list? You've kept the list this far; perhaps someone will someday come along who will want it.

Here it is, or rather, here are the words I thought unusual after omitting those I had since learned to recognize as true Polynesian.

jacui, whistle
awhi, bad
amah, mother
pituha, medicine man
anghi, a spirit
temihu, taro dried
iret-ham, settlement
mamahe, spirit (guardian spirit?)
petimi, tobacco
menuhi, a yam
tata, fire
nadike, pretty

One other strange note to add to the mystery. Alongside the word "nadike," in my handwriting, I find the notation: "So the old man says," and in the right margin, "The old woman says that is wrong, it is 'nadehke.'"

James Norman Hall

Papeete, November 1948

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Surface Finds

by Arthur George Smith



Beginning collectors often ask me; "Where can I find sites in my area?" I always reply; "Go out and look for them."

Indian sites are easy to find. All you have to do is to put yourself in the place of the Indian on the trail late in the afternoon. Visualize what the country looked like in Indian days. It might have been forest then, but both you and he know the rivers and the little creeks and the hills and valleys. They are just about the same today as they were then, except some of the smallest streams have dried up and disappeared.

You are footsore and weary and you want a place to camp. You need water, dry soil underfoot, and a supply of brush for firewood. If possible to find, you want shelter from the prevailing wind and a place that is defensible. Where do you know such a place? Go there and you will find that some Indian found and used it. He also left something behind for you to find. Maybe only a hundred years ago, maybe ten thousand years ago or any time in between.

Sites vary from great villages covering many acres to spots only a few feet across. The great villages left layer after layer of garbage enriched dirt and trash several feet thick. The little spot, an ideal site for an overnight camp, may have left very little for you to find.

If you live in flat country, you will find that practically all the sites will be on the points where streams join. Often the whole length of the high bank along a river is a thin site. Likely there is little to be found more than a couple of hundred feet from the break of the bank. In rolling country you can also find what I call lookout sites on some hilltop with a good all-around view of the valleys. No, these sites were not where the Indians watched for hostile war parties, but where a hunter or two sat and watched for game moving in the valleys. While watching he might replace a broken dart or arrowtip, make a few points from flakes in his pouch, some arrows, or do any other little chore. As a result there will be a small spot yielding chips or a few broken or defective points or maybe a knife or even a hammerstone or a celt forgotten when a herd of deer or other game came into sight. I once found such a spot on a hilltop that had been burned over and all the topsoil washed away. I collected everything that had been on the site, about a couple of hundred small chips, two bases of arrowpoints broken by impact, cut out and tossed away, and a combination tool. This tool was sort of a Boy Scout jackknife. One edge was saw edged, one was sharp for a knife and the end was

a concave scraper, one point of which showed use as a drill. Maybe its owner got excited and forgot his tool kit when he saw game in the valley below.

If you live in what was once buffalo country, you may find a "kill" site. Before the Indians obtained modern weapons, the easy way to put buffalo meat in the pot was to run a small herd over a bank to their death. Even men on foot could do this, since setting fire to the grass would panic the animals. A good spot for this sort of kill was used year after year. As a result, lost or discarded butchering tools and projectile points accumulated.

If you know where there is an Indian trail, scout along it. Every place where it crossed a small stream or creek there will be a camp site of some size. Unfortunately, such a site is a nice place for a white man to build his home and too often he has.

Some Indians travelled by canoe, so you may find camp sites on slightly higher ground close to the stream in river bottoms. Also the later Indians often camped on these same places in the summer to be close to the cornfields. As a rule these were in the rich bottom land.

Often a place looks ideal for a camp site but never was used. Along the Alabama River I was puzzled by the fact that an ideal location did not show even a chip, while a few hundred yards on each

side the ground was literally littered with relics. Then I noted that before the ground had been cleared it was a growth of cane. The spots that had been used were formerly pine woods, and an old stand of pine is an ideal camp site.

Along the rivers running into Lake Erie, I was puzzled by the fact that while there were lots of large Iroquoian sites on the west banks, on the east banks there were only very few small camp sites. Then it dawned on me that back in Indian days, the prevailing west winds swept across the valley. They brought with them clouds of mosquitoes in the summer, and froze one's ears in winter, whereas on the west bank the tall forest broke the force of the wind, and blew the "skeeters" away.

I know of a series of very early sites in central Ohio along a river with numerous narrow gullies coming into the valley. The sites are on a continuous terrace, but opposite the mouths of the gullies there is no debris on the ground. Those oldtimers had kept out of the cold drafts blowing down those gullies when the wind was in the north. Even 6,000 years ago, folks liked to be as comfortable as possible.

In Tennessee, I discovered a number of early sites by checking the creek bottoms at the places where there was a steep bank or cliff facing south and with dry ground at the base of them. The sun

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helped to keep the camp warm. Some of these sites had been buried under slope wash, and then cut into by recent floods, revealing an old surface with camp debris.

When you start to hunt for sites you must keep all these things in mind just as if you were out in the open yourself and looking for a good place to camp.

But sites are sometimes found in places for which there seems to be no reason whatever. I know of one late site in a marsh. Probably it was a refuge in time of trouble.

Some Indian cultures built their villages right along the banks of the big rivers. Other cultures hid their villages back away from the danger of war parties on the river.

If you have an eye for the lay of the ground, you can find village and camp sites the first time you see it. I remember stopping at a crossroads in the Ozarks. I had time to kill, and what better way than by doing a bit of relic hunting? I climbed up a hill that gave a good view and looked around at the terrain. The best looking place for a site was on a small flat of higher ground near the Gasconade River. There was a cabin on the spot. I asked the man if he ever

found any "Injun darts;" he never had, but was willing that I should look. I found six longer than my fingers, and a celt, in his garden patch, all early archaic material.

To summarize, if you want to find sites, go out and look for them yourself, keeping a few rules in mind, rules that are pertinent to the culture that lived in the area. When you find a site, always remember to report it to your professional contacts so that it may be mapped and properly recorded.

If you live in the West, one of the best places to look is around the shores of old lakes no longer extant. It is usually quite easy to find indications of old shore lines. Since space here is too limited to describe them, it might be well to check with a geologist friend before starting out. There were once many more lakes in the West than there are now and they were favorite camping places for the Indians.

In "Surface Finds" of the next issue, Mr. Smith will tell you how to catalog your collection. Elsewhere in this issue will be found an article on one way of cataloguing. As there are many good methods, we look forward to learning Mr. Smith's way, also. Ed.

Mexican jade artifacts, although thought of as jade by the early Indian makers, are not always made of true jade. Often other green or greenish stones were used, even a soft soapstone, which were still prized as jade. True jade is of two distinct types, jadeite and nephrite, which differ one from the other in sheen, weight, hardness, and chemical composition.

The most important modern Biblical discovery of the Isaiah roll a few years ago with the other Biblical records we now refer to as the Dead Sea scrolls. We

do not have any "original" copies of the Bible or of any of the books of the Bible. Those we do have are copies that have been made from copies, which in turn have been made from copies. No copyist could ever copy an entire book without making some slight mistake. Some mistakes could not even be termed slight. In addition to the legitimate mistakes, it was never considered wrong in the early days to make a deliberate change in order to make the copy conform to the current beliefs. Hence as time went on and copy was made from copy, each with additional changes and errors, the books of the Bible have changed.

Dear Editor:



Dear Editor:

After reading the actual situation concerning Brown's artifact collection I now agree that this collector has acted in an approved manner and is a credit to the field of archeology. Without good amateurs such as Brown, our profession would be at a standstill for they are almost always the eyes of the "desk-bound" professional archeologist. One point I would like to make however: All amateur archeologists should report all evidence of cultural material "in situ" as quickly as possible to the closest qualified professional. We find all too few good "in situ" locations before they are damaged or destroyed by erosion. The amateur can and often does help save some very valuable sites by prompt reporting.

George A. Agogino

Dr. Agogino's comments pertain to the Ray Brown article on page 23, Dec. 1960 issue. See also, the editorial, this issue. Ed.

Dear Editor:

I always check the ledges in old barns and sheds. Many the good point I have found on them.

The idea of extending anthropological work through the Boy Scouts and high school societies will strip the countryside of all remains in a decade. Boy scout troops are not led by trained anthropologists. I give talks to such youth groups and I stress that you can get more relics by surface hunting than by digging. I also stress keeping records and turning in a copy of each to some repository. But scoutmasters do not see it that way. Not long ago a friend of mine gave a talk to a boy scout troop. After the talk he gave each lad a nice perfect point. In a few minutes the lads came back to him saying that the points were fakes. The scout-

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Editorial

CONTINUED FROM PAGE 74

began coming in, we contacted the archeologists who know Mr. Brown and his activities.

We have been assured that Brown is the type of a "collector of whom every professional archeologist can be proud." His collection consists of "surface finds" only, except those items that he has dug from rights-of-way that have been checked by salvage archeologists and have been released by them. He cooperates in every way with salvage archeological workers and does not hamper their activities in any way nor encourage promiscuous digging.

The article under fire was a reprint of an article that appeared in a house organ. Ordinarily reprints are not changed or modified in any way since, in a manner of speaking, they are "direct quotations" from other publications. The editor now realizes his mistake in quoting this particular article verbatim. Reprinting it unchanged was an error since (a) it gave some readers the wrong idea of Brown's activities, and (b) one caption contained a price quotation of an artifact. The editor, not being interested himself in the monetary value of artifacts, overlooked what it might mean to others.

New captions have been placed in all copies of that issue now in stock, and copies are available upon request to those who wish to correct library copies. This new caption reads:

A three-inch obsidian point is one of the finest in Ray Brown's collection. Mr. Brown is an outstanding collector from a professional archeologist's point of view. He collects only "surface finds." His fine collection is properly catalogued and documented. He works with highway archeological salvage crews and reports his surface finds.

Readers may rest assured that no more slips of that nature will occur.

This magazine takes the following stand:

(a) Our antiquities must be protected adequately by law so that Science may obtain as much information from them as possible;

(b) We must train our citizens to respect our antiquities laws. If these laws are inadequate, we must either change the laws or train our people to protect their national heritage beyond the requirements of the law;

(c) We must recognize that antiquities are for all, the scientist, the collector, and the average person. After study by the scientists, their reports must be made available to the general public as soon as possible and the antiquities must go to a museum where all may enjoy them.

(d) Since our antiquities, like our world itself, belongs to all, anyone who wants to has the right to be a collector, but within the law. His collecting, however, must not interfere with the advance-

ment of knowledge and must not be destructive. Our laws as stated in the editorial on page 38 (SofM Feb. '61) must be adequate to protect our scientific interests as well as our collectors' instincts.

(e) This magazine will continue to permit advertising from those who collect, sell, or trade artifacts legitimately. It will not knowingly permit advertising by those dealing in artifacts illicitly. It will not knowingly permit advertising of "fakes." It will advertise copies, provided that they are clearly and unmistakably marked "copies," "museum replicas," or other similar marking.

Those few scholars who would eliminate collecting entirely by legislation should remember "prohibition" days. While we advocate no stand on "prohibition," our two constitutional amendments and what transpired between them should be sufficient to indicate that legislation can stop nothing the people really want.

Many letters from professionals who would like to see collecting eliminated have also mentioned the fact that although they have tried for years, they know of no satisfactory way to accomplish this. In view of the fact that all recognized that there is no satisfactory way to eliminate it entirely, we take the stand that it is much better to recognize that some form of collecting will always exist, to control it as much as possible by adequate legislation, and then to train, guide, and USE the amateurs and collectors to the best advantage of anthropology.

Dear Editor:

CONTINUED FROM PAGE 106

master had told them so since he could not strike sparks with them. This was his idea of a test for authenticity. The perfect points were all broken by an ignorant scoutmaster.

I check the collections of boy scouts to get their badge. Half of the collections are bought from dealers, but the lads unblushingly declare they found them. The less encouragement from the teenage lads to deplete what is left of our heritage from the Indians, the better. Not one in a thousand will continue to be interested in archaeology once he gets the badge.

All my life I have heard the prevalent idea that Indian mounds contain treasure. It is not just the ignorant that believe this. I had a man with an M.A. tell me that the Ohio State Museum was built from the treasure taken out of one certain mound. He said no one would go to all that trouble just to get a few arrows and skinning knives. Now there is a new idea cropping out. Did you know that celts have either a gold nugget or a diamond in the center of them? Capt. John Smith mentioned "such rough dia-

monds." So the Indians must have had diamonds. It seems Capt. Johnnie didn't know the difference between quartz crystals and diamonds. Many celts are now being broken up to get the diamond or nugget.

Arthur George Smith,
Curator of Archaeology
The Firelands Museum,
Norwalk, Ohio

Dear Editor:

Your editorial in the first issue touched a warm spot in our hearts. We are fighting for the preservation of our antiquities with all the powers at our command. Three years ago the Illinois Archaeological Survey was formed mainly to coordinate activities in this field among the many institutions involved. The three agencies most directly concerned are the University of Illinois, Southern Illinois University, and the State Museum, but in addition other members are the University of Chicago, the Chicago Natural History Museum, Beloit College, Rockford College, and several others with an occasional interest.

Within recent months we have formed as an Advisory Committee a group of non-professionals, largely businessmen, who take a deep interest in the subject and want to further its progress. Our job is to relieve the professional archaeologists of fund raising, legislative matters, and other things with which they are not familiar.

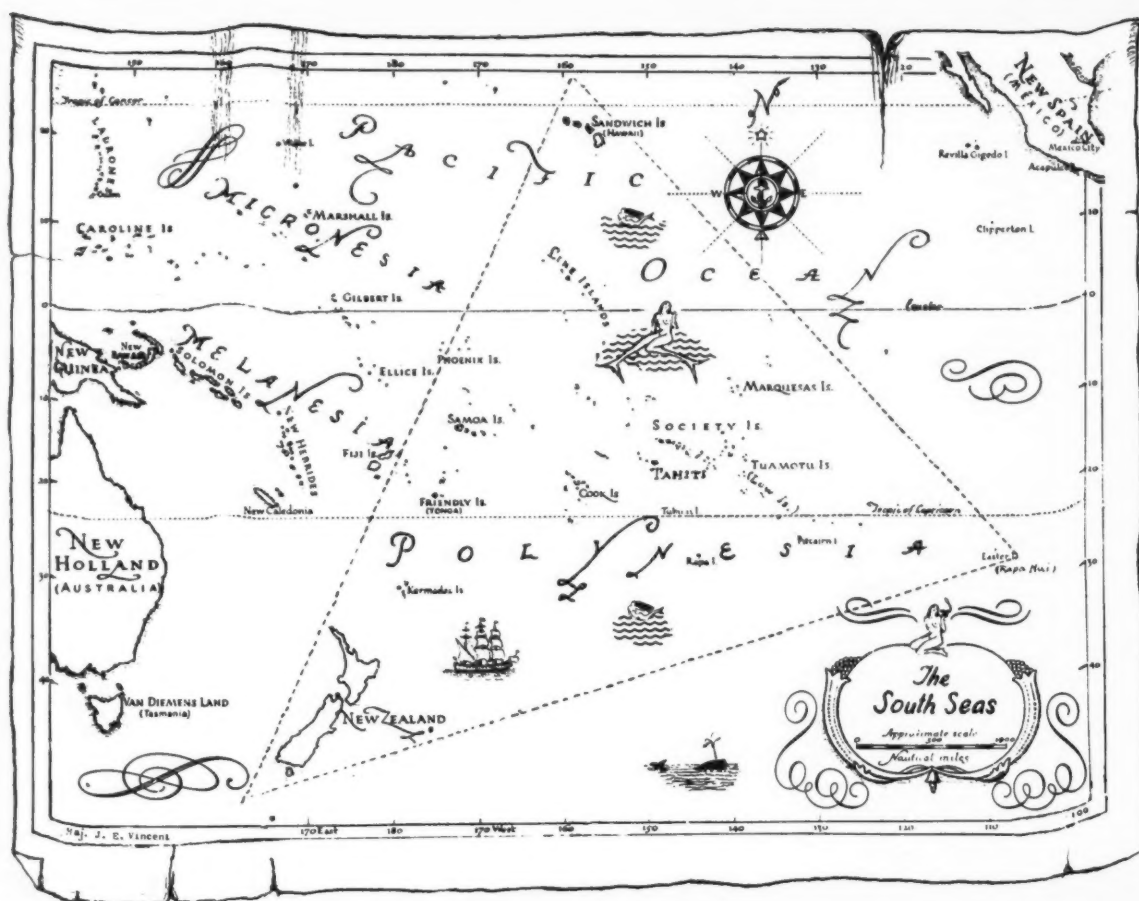
We are just now in the process of drafting an Antiquities Act to be submitted to the State Legislature which we hope will be passed. As drafted, it makes provision for the preservation of all archaeological discoveries, and the Act has teeth in it.

While the Survey is principally a coordinating and planning group, it does take to the field on occasion. A year ago last summer it carried on an excavation of an historic Sauk village site near Rock Island, and also was able to move in immediately on a gravel pit near Chicago where a glacial kame burial had been discovered, the earliest known so far in the area of northeastern Illinois.

James R. Getz

A tombstone bearing an inscription purporting to describe the events during the flight of the infant Jesus into Egypt has been found in a Coptic monastery 200 miles south of Cairo. According to the inscription, the tombstone was from the grave of Youssa, a descendant of a son of Joseph.

Babylonian contracts of 2,000 B.C. have been found. One tells of paying an owner so many *gin* of silver, as the full price, for unoccupied house lots or established gardens. One states that in the future he will not make compliant.



Polynesia

A generation or so ago, the South Seas were made famous by the writings of Melville, O'Brien, and Stevenson, and by the artists, Gauguin and Leeteg.

Although a few writers like Nordhoff, Frisbie, Hall, and Michener, kept up the tradition, interest in the Polynesian Islands, popularly known as the South Seas, and its people has waned somewhat during the past two decades. Except for the writings of a few, like Mead and Buck among others, anthropology (and archeology in particular) of the area lagged somewhat.

Now, with Hawaii's having been admitted as a state, and with the increased political activities of some of our Latin American neighbors, the travel bureaus tell us that popular interest seems to have shifted from the countries "South of the Border" back to the South Seas.

This seems to be corroborated by the increased number of articles we are receiving on the anthropology of Polynesia. The last issue contained "The Samoan Kava Ceremony," by Dr. Lowell D. Holmes. Other contributions

by the same author on Polynesian navigation will appear later. This issue contains two items, though of less importance, on other parts of the area.

One is an extract of a letter entitled, "The Wrath of the Gods of Rapa Nui," telling the effect of last summer's tidal wave, on the people and the antiquities on Easter Island, at the eastern corner of the Polynesian triangle. Another short item by the well known writer, James Norman Hall, tells about a little known language he once heard of in the Low Islands (Tuamotu or Paumotu) near Tahiti in southeast Polynesia. See accompanying map.

To these, the editor whose doctoral field is the Polynesian cultures, has added an article, "The Hula, the Hawaiian Sign Language." The Hawaiian Islands (or the State of Hawaii, as we may call them now) are at the northern apex of the Polynesian triangle. This leaves only the New Zealand apex of the triangle not yet covered, although an article has been promised for the near future on the anthropology of that portion of Polynesia.

